ACOE Estimating

Developing Supportable hourly rates for construction equipment.

Presented by: Shane Schieck

Western Federal Lands Highway Division

Winter Training – January 16, 2009

Why use ACOE Estimating?

Independent Government Estimates (IGE) require equipment hourly rates to be supportable and defendable.

Even if the ACOE rate is too low for the area or the conditions, it provides a place to start negotiations.

Scenarios

- Standard conditions with relatively new equipment (Up to 5 years old)
- Severe conditions, changing economic climate, or older equipment
- Leased equipment

Standard Conditions – Relatively New Equipment

Hourly equipment rates looked up directly in the ACOE rate book.

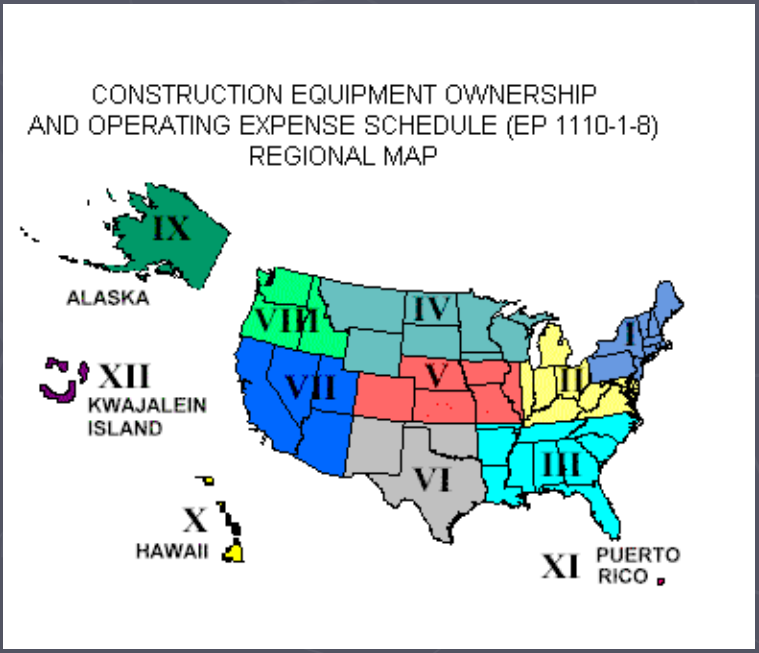
ACOE rate book hourly rates do not include –

- Labor Costs
- Profit
- Overhead
- Licensing fees
- Security

Standard Conditions – Relatively New Equipment

Publication Number: **EP 1110-1-8**

Construction Equipment Ownership and Operating Expense Schedule



The region that the project is located in will determine which volume of the EP 1110-1-8 pamphlet should be used. Region 8 should use volume 8 of the pamphlet and so on.

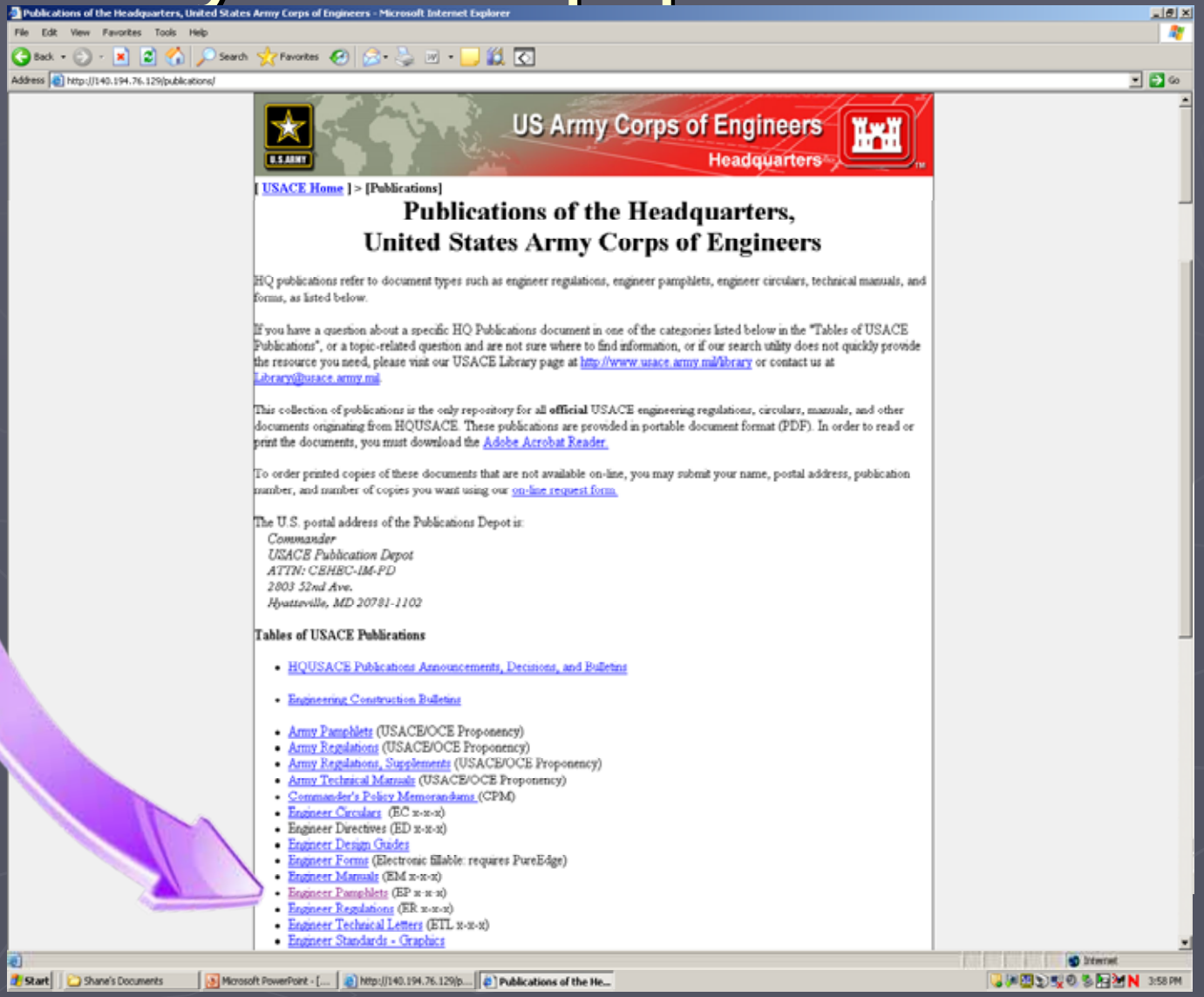
Standard Conditions – Relatively New Equipment

Go to the US Army Corps. Web site and under the "Library" heading left click on "Publications"

http://www.usace.army.mil

Standard Conditions – Relatively New Equipment

Left click on “Engineer Pamphlets”

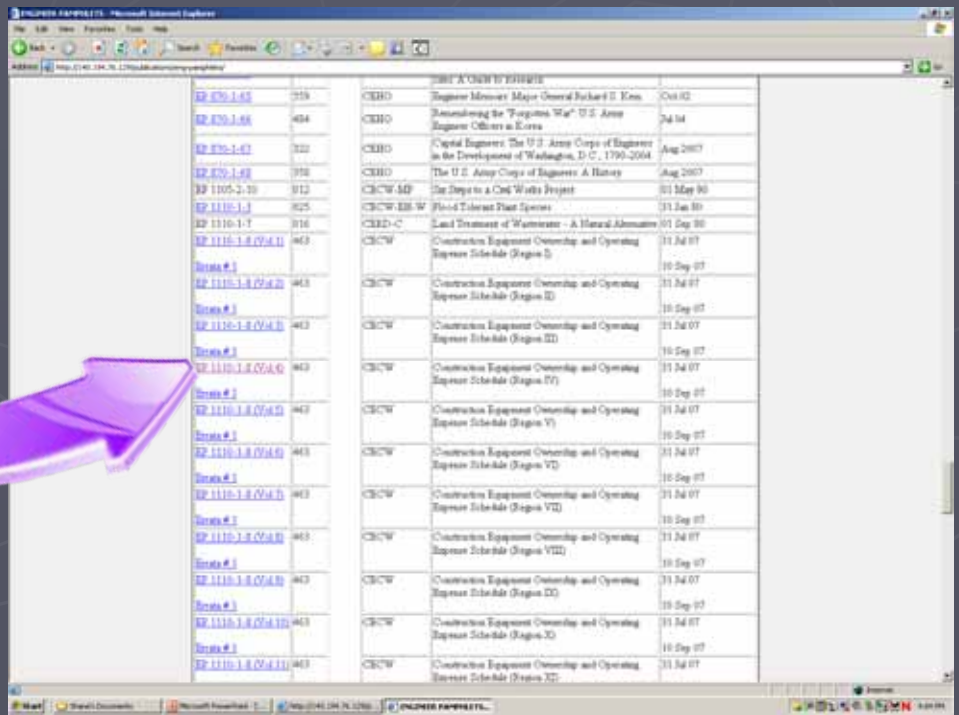


Standard Conditions – Relatively New Equipment

Scroll about ¾ of the way down the list of pamphlets

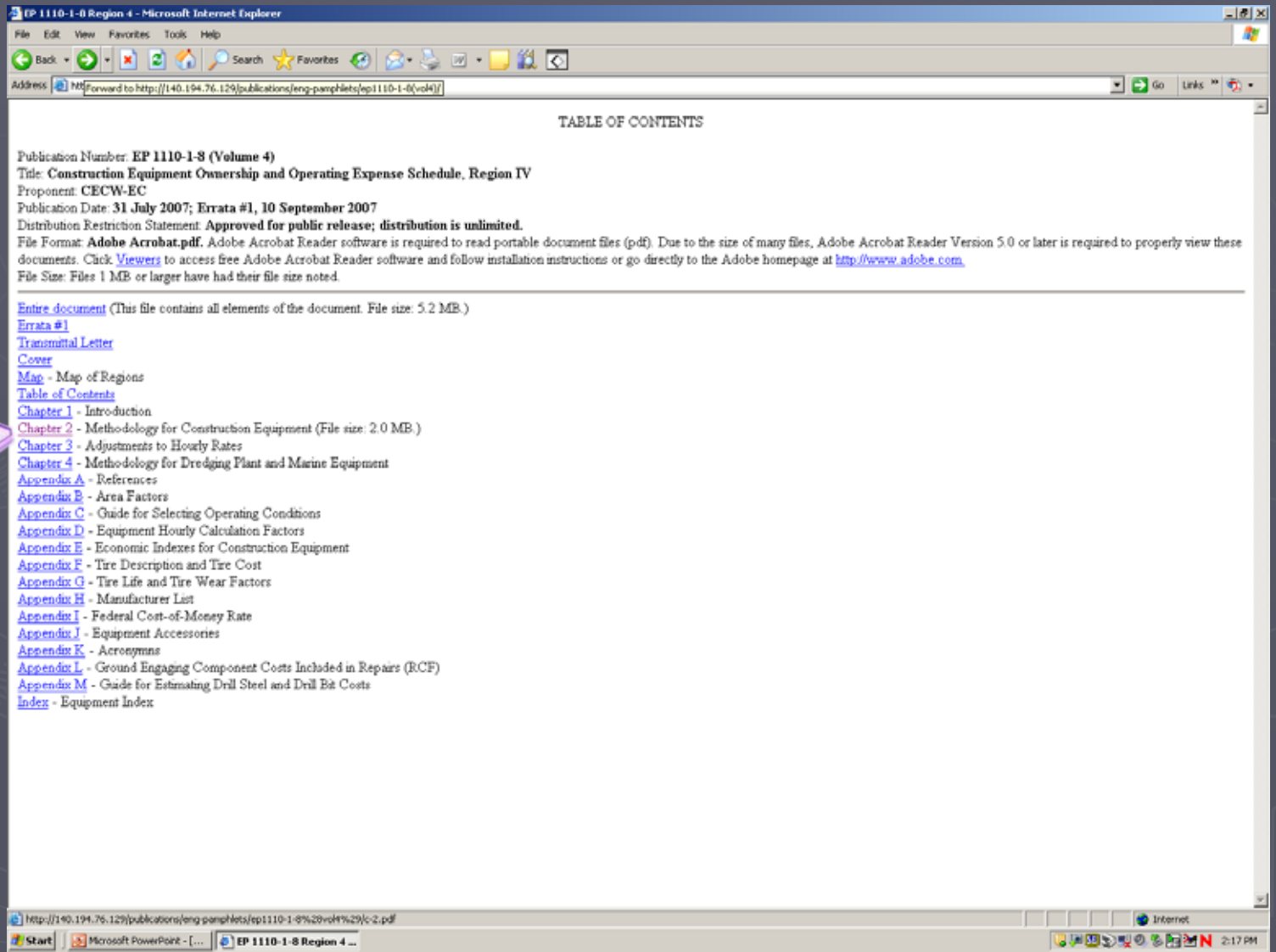
Left click on **EP 1110-1-8**

Construction Equipment Ownership and Operating Expense Schedule for the region desired.



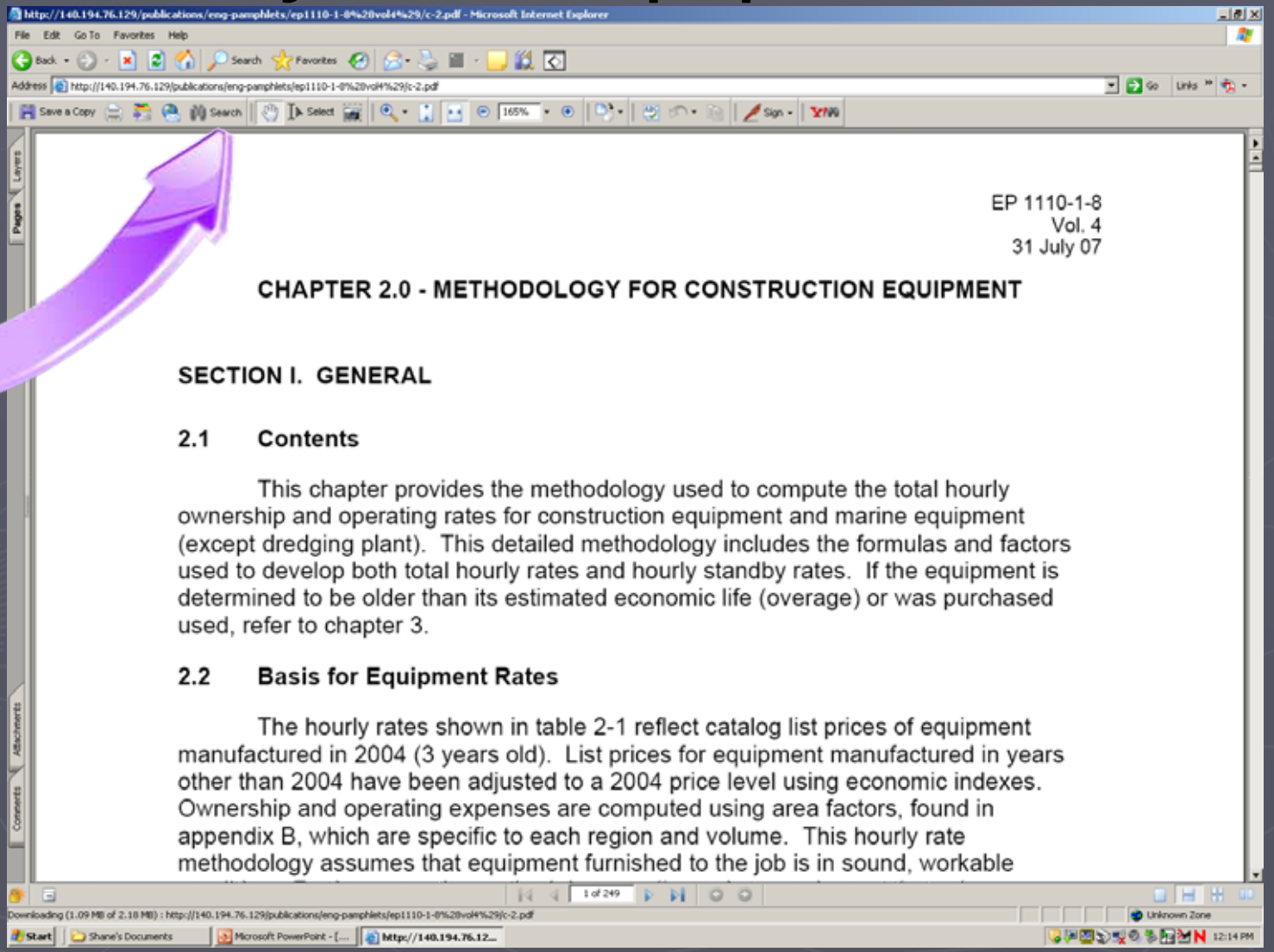
Standard Conditions – Relatively New Equipment

Left click on "Chapter 2"



Standard Conditions – Relatively New Equipment

Either scroll through the 249 page document to find desired equipment, or left click on the search button to search for equipment.



EP 1110-1-8
Vol. 4
31 July 07

CHAPTER 2.0 - METHODOLOGY FOR CONSTRUCTION EQUIPMENT

SECTION I. GENERAL

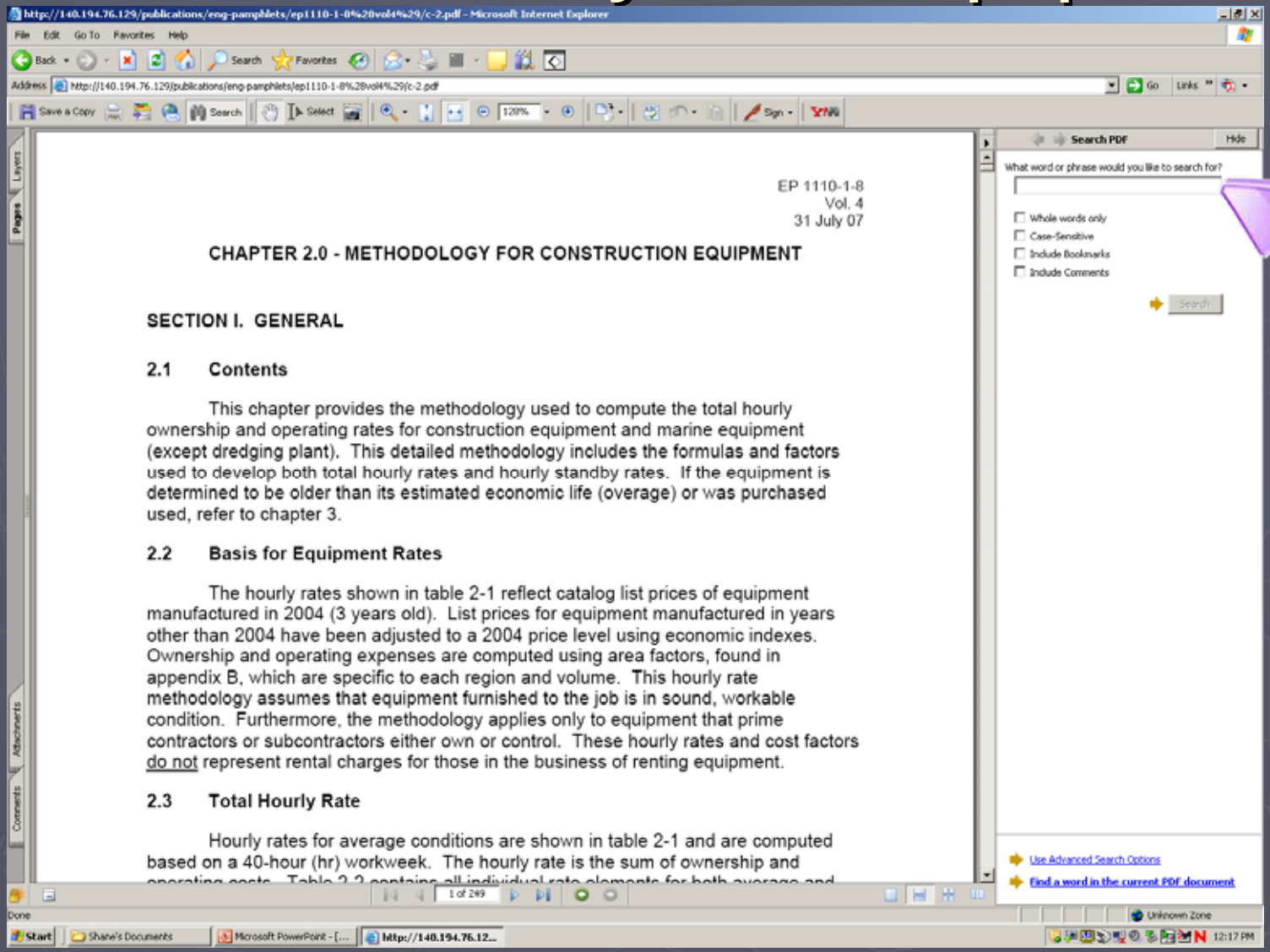
2.1 Contents

This chapter provides the methodology used to compute the total hourly ownership and operating rates for construction equipment and marine equipment (except dredging plant). This detailed methodology includes the formulas and factors used to develop both total hourly rates and hourly standby rates. If the equipment is determined to be older than its estimated economic life (overage) or was purchased used, refer to chapter 3.

2.2 Basis for Equipment Rates

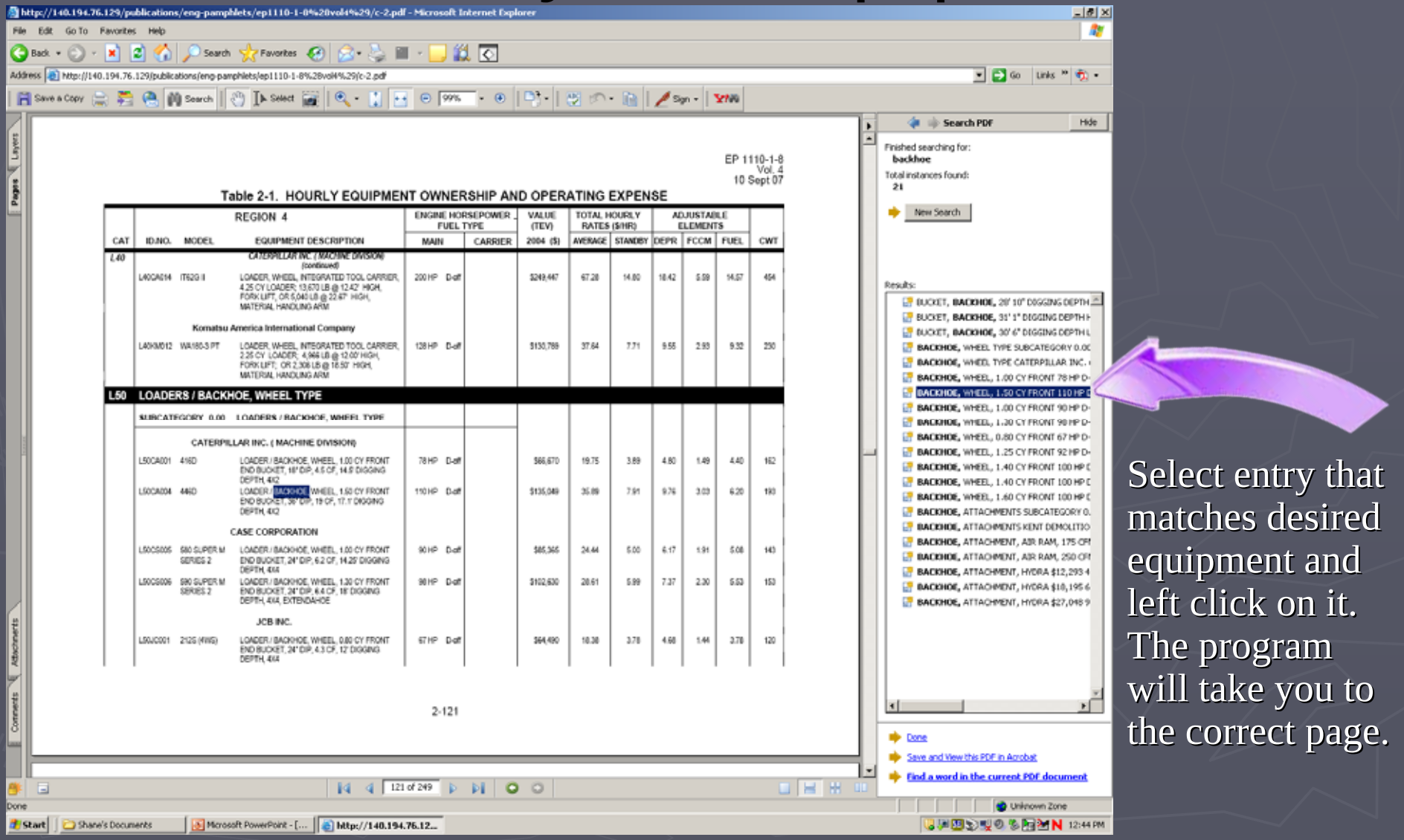
The hourly rates shown in table 2-1 reflect catalog list prices of equipment manufactured in 2004 (3 years old). List prices for equipment manufactured in years other than 2004 have been adjusted to a 2004 price level using economic indexes. Ownership and operating expenses are computed using area factors, found in appendix B, which are specific to each region and volume. This hourly rate methodology assumes that equipment furnished to the job is in sound, workable

Standard Conditions – Relatively New Equipment



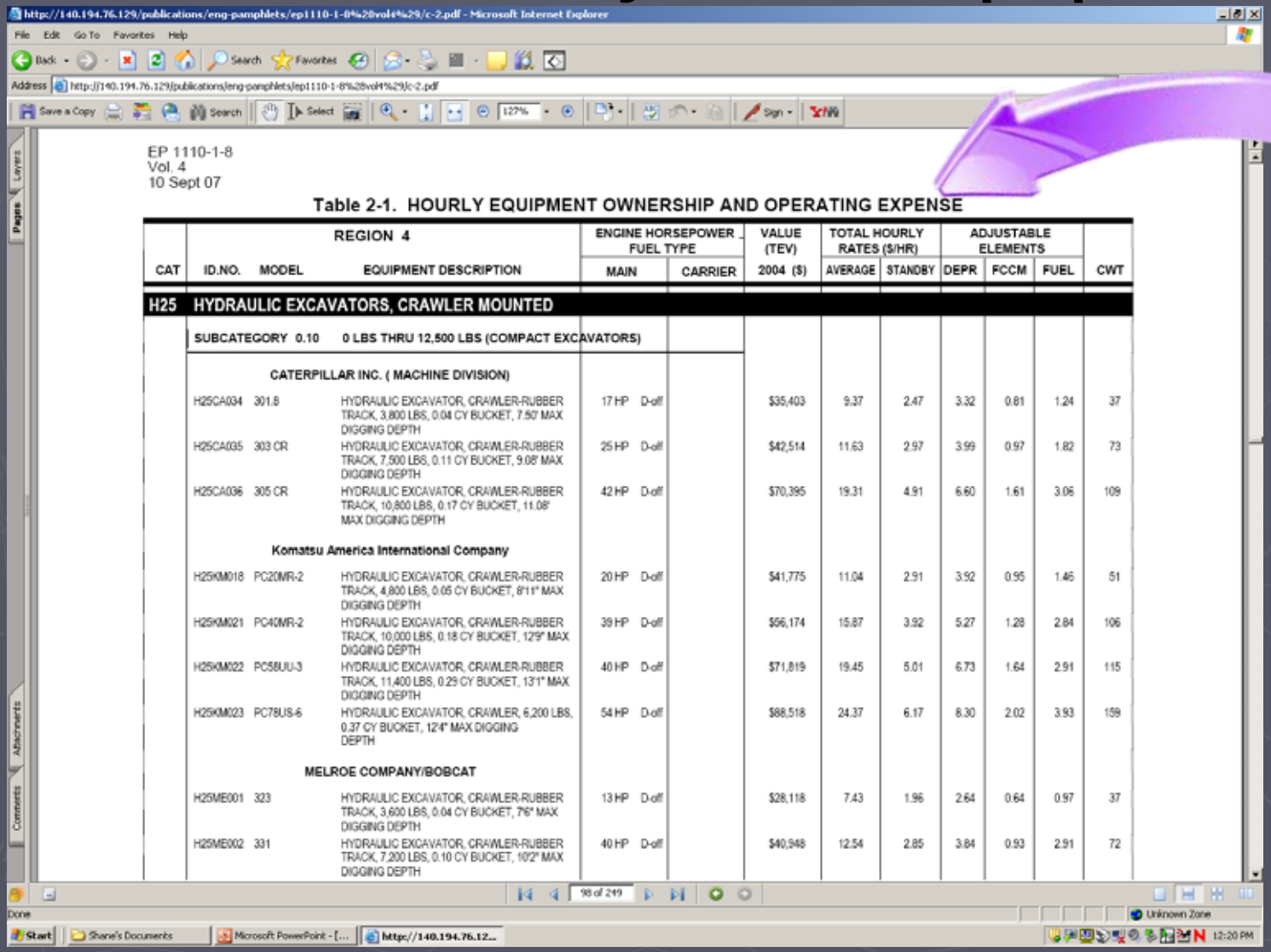
Enter key word in this box – an example would be “excavator” or “backhoe” and then press search.

Standard Conditions – Relatively New Equipment



Select entry that matches desired equipment and left click on it. The program will take you to the correct page.

Standard Conditions – Relatively New Equipment



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Vol. 4
10 Sept 07

Table 2-1. HOURLY EQUIPMENT OWNERSHIP AND OPERATING EXPENSE

CAT	REGION 4 ID.NO.	MODEL	EQUIPMENT DESCRIPTION	ENGINE HORSEPOWER FUEL TYPE MAIN	CARRIER	VALUE (TEV) 2004 ($)	TOTAL HOURLY RATES ($/HR) AVERAGE	STANDBY	ADJUSTABLE ELEMENTS DEPR	FCCM	FUEL	CWT
H25	**HYDRAULIC EXCAVATORS, CRAWLER MOUNTED**											
	SUBCATEGORY 0.10		**0 LBS THRU 12,500 LBS (COMPACT EXCAVATORS)**									
			CATERPILLAR INC. (MACHINE DIVISION)									
	H25CA034	301.8	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 3,800 LBS, 0.04 CY BUCKET, 7.50' MAX DIGGING DEPTH	17 HP D-off		$35,403	9.37	2.47	3.32	0.81	1.24	37
	H25CA035	303 CR	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 7,500 LBS, 0.11 CY BUCKET, 9.08' MAX DIGGING DEPTH	25 HP D-off		$42,514	11.63	2.97	3.99	0.97	1.82	73
	H25CA036	305 CR	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 10,800 LBS, 0.17 CY BUCKET, 11.08' MAX DIGGING DEPTH	42 HP D-off		$70,395	19.31	4.91	6.60	1.61	3.06	109
			Komatsu America International Company									
	H25KM018	PC20MR-2	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 4,800 LBS, 0.05 CY BUCKET, 8'11" MAX DIGGING DEPTH	20 HP D-off		$41,775	11.04	2.91	3.92	0.95	1.46	51
	H25KM021	PC40MR-2	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 10,000 LBS, 0.18 CY BUCKET, 12'9" MAX DIGGING DEPTH	39 HP D-off		$56,174	15.87	3.92	5.27	1.28	2.84	106
	H25KM022	PC58UU-3	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 11,400 LBS, 0.29 CY BUCKET, 13'1" MAX DIGGING DEPTH	40 HP D-off		$71,819	19.45	5.01	6.73	1.64	2.91	115
	H25KM023	PC78US-6	HYDRAULIC EXCAVATOR, CRAWLER, 6,200 LBS, 0.37 CY BUCKET, 12'4" MAX DIGGING DEPTH	54 HP D-off		$88,518	24.37	6.17	8.30	2.02	3.93	159
			MELROE COMPANY/BOBCAT									
	H25ME001	323	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 3,600 LBS, 0.04 CY BUCKET, 7'6" MAX DIGGING DEPTH	13 HP D-off		$28,118	7.43	1.96	2.64	0.64	0.97	37
	H25ME002	331	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 7,200 LBS, 0.10 CY BUCKET, 10'2" MAX DIGGING DEPTH	40 HP D-off		$40,948	12.54	2.85	3.84	0.93	2.91	72

The hourly rates given under the "Average" and the "Standby" columns under the "Total Hourly Rates" heading are base rates that can be adjusted for accuracy.

Standard Conditions – Relatively New Equipment

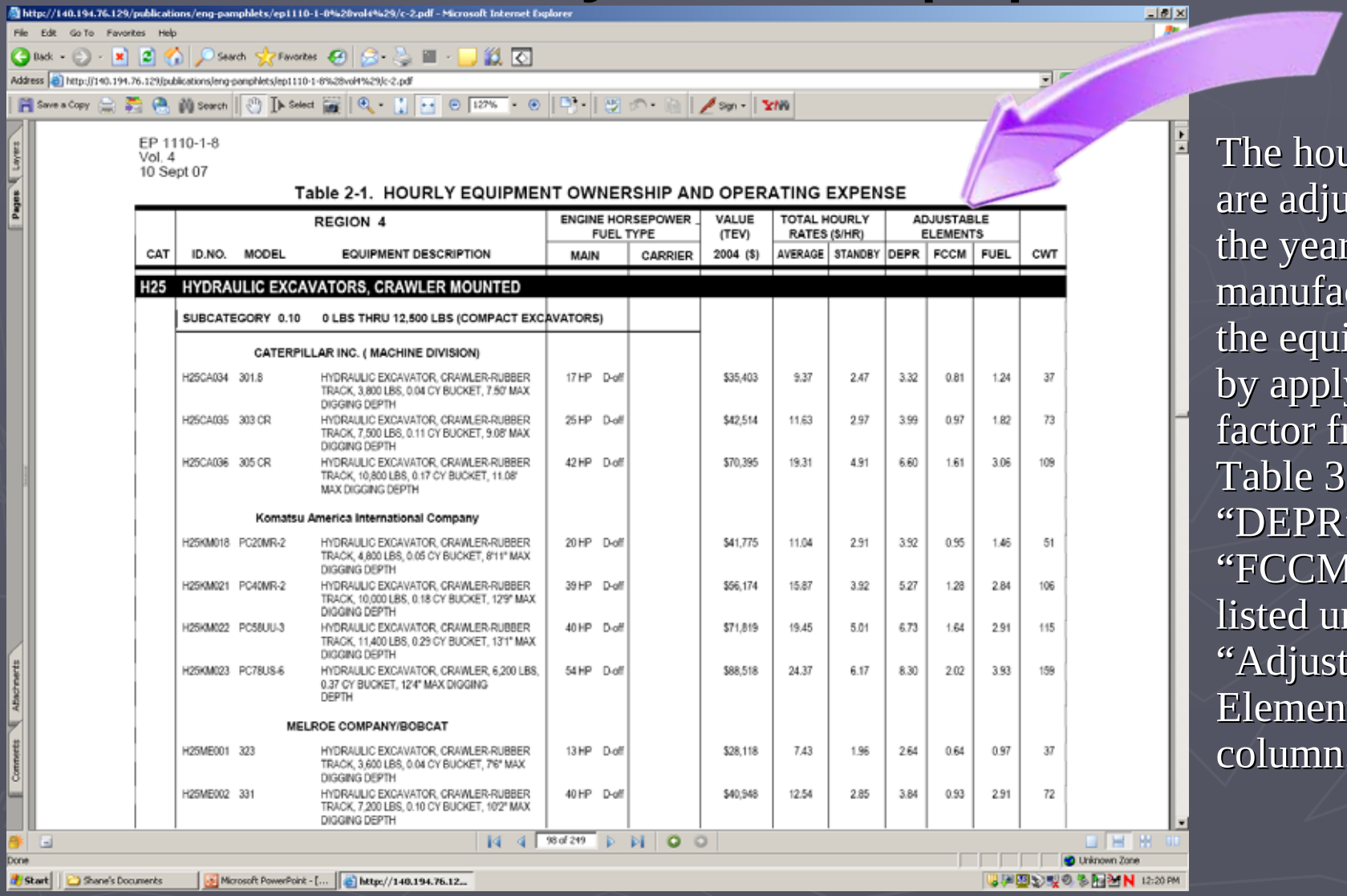
Chapter Three of the pamphlet covers reasons to adjust the hourly rates. These reasons include but are not limited to:

- Equipment of different age than table 2-1
- Rate adjustments for overage equipment
- Actual work hours exceed 40 hours per week
- Changes in the cost of money rate
- Changes in FUEL cost
- Adjustments to FOG cost

Standard Conditions – Relatively New Equipment

The “Average” and “Standby” rates given in Table 2.1 are applicable only to equipment manufactured in the base year of the pamphlet (in the 2007 edition of the pamphlet the base year is 2004). This information is given in Section 2.2 of the pamphlet.

Standard Conditions – Relatively New Equipment



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The hourly rates are adjusted for the year of manufacture for the equipment by applying a factor from Table 3.1 to the "DEPR" and the "FCCM" values listed under the "Adjustable Elements" column.

Standard Conditions – Relatively New Equipment

Table 3-1 Equipment Age Adjustment Factors for Ownership Cost

CATEGORY SUB	REGION 8 TYPE OF EQUIPMENT	Life in Years / Year Purchased New																	
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
C65 0.00	CONCRETE VIBRATORS	1.11	1.08	1.04	1.00														
C70 0.00	CRANES, GANTRY & STRADDLE																		
C75 0.00	CRANES, HYDRAULIC, SELF-PROPELLED	1.15	1.13	1.06	1.00	0.97	0.94	0.88	0.89	0.89	0.88								
C80 0.00	CRANES, HYDRAULIC, TRUCK MOUNTED																		
C80 0.01	UNDER 26 TON	1.15	1.13	1.06	1.00	0.97	0.94	0.88	0.89	0.89	0.88								
C80 0.02	26 TON THRU 65 TON	1.15	1.13	1.06	1.00	0.97	0.94	0.88	0.89	0.89	0.88	0.86							
C80 0.03	66 TON THRU 125 TON	1.15	1.13	1.06	1.00	0.97	0.95	0.88	0.89	0.89	0.88	0.86	0.84						
C80 0.04	OVER 125 TON	1.15	1.13	1.06	1.00	0.97	0.95	0.88	0.89	0.89	0.88	0.86	0.84	0.81					
C85 0.00	CRANES, MECHANICAL, LATTICE BOOM, CRAWLER MOUNTED																		
C85 0.11	DRAGLINE, CLAMSHELL, 0 THRU 1.0 CY	1.16	1.14	1.07	1.00	0.97	0.94	0.87	0.89	0.88	0.87								
C85 0.12	DRAGLINE, CLAMSHELL, OVER 1.0 CY THRU 2.5 CY	1.16	1.14	1.07	1.00	0.97	0.94	0.87	0.89	0.88	0.87	0.85							
C85 0.13	DRAGLINE, CLAMSHELL, OVER 2.5 CY THRU 5.0 CY	1.16	1.13	1.07	1.00	0.97	0.94	0.87	0.89	0.88	0.87	0.85	0.83						
C85 0.14	DRAGLINE, CLAMSHELL, OVER 5.0 CY	1.16	1.13	1.07	1.00	0.97	0.94	0.88	0.89	0.89	0.87	0.85	0.83	0.81					
C85 0.21	LIFTING, 0 THRU 25 TON	1.16	1.14	1.07	1.00	0.97	0.94	0.87	0.89	0.88	0.87	0.85							
C85 0.22	LIFTING, 26 TON THRU 50 TON	1.16	1.13	1.07	1.00	0.97	0.94	0.87	0.89	0.88	0.87	0.85	0.83						
C85 0.23	LIFTING, 51 TON THRU 150 TON	1.15	1.13	1.06	1.00	0.97	0.95	0.88	0.89	0.89	0.88	0.86	0.84	0.81					
C85 0.24	LIFTING, OVER 150 TON	1.15	1.13	1.06	1.00	0.97	0.95	0.88	0.89	0.89	0.88	0.86	0.84	0.81	0.80	0.79			
C90 0.00	CRANES, MECHANICAL, LATTICE BOOM, TRUCK MOUNTED																		
C90 0.01	UNDER 26 TON	1.15	1.13	1.06	1.00	0.97	0.94	0.88	0.89	0.89	0.88								
C90 0.02	26 TON THRU 65 TON	1.15	1.13	1.06	1.00	0.97	0.94	0.88	0.89	0.89	0.88	0.86							
C90 0.03	66 TON THRU 125 TON	1.16	1.13	1.07	1.00	0.97	0.94	0.87	0.89	0.88	0.87	0.85	0.83						
C90 0.04	OVER 125 TON	1.16	1.13	1.07	1.00	0.97	0.94	0.88	0.89	0.89	0.87	0.85	0.83	0.81					
C95 0.00	CRANES, TOWER	1.16	1.13	1.07	1.00	0.97	0.94	0.87	0.89	0.88	0.87	0.85	0.83						
D10 0.00	DRILLS, AIR/HYDRAULIC,CRWLR MTD,0" THRU 6.5" DIA HOLE (Add cost for drill steel and bit wear)																		
D10 0.10	DRILLS, AIR TRACK (Add cost for drill steel and bit wear)	1.26	1.19	1.09	1.00	0.93	0.91	0.82	0.80	0.78	0.77								
D10 0.20	DRILLS, HYDRAULIC TRACK (Add cost for drill steel and bit wear)	1.27	1.20	1.09	1.00	0.93	0.90	0.82											
D15 0.00	DRILLS, HORIZONTAL BORING & GROUND PIERCING (Add cost for drill steel and bit wear)	1.27	1.20	1.09	1.00	0.93	0.90	0.82											

In Table 3.1 the adjustment factors for the equipment rates are listed by the equipment type and the "Year Purchased New" – or year of manufacture.

Standard Conditions – Relatively New Equipment

The formulas for adjusting the equipment rates for the age of the equipment are as follows:

Adjusted Average rate = (Average rate - DEPR - FCCM) +
(Adjustment factor * [DEPR +FCCM])

Adjusted Standby rate = Standby rate * Adjustment factor

Standard Conditions – Relatively New Equipment

The adjustments to the “Average” and “Standby” rates for overage equipment (equipment beyond its economic life) are done in the same manner and with the same formulas as the rate adjustments for age. The piece of equipment is looked up in Table 3.1 and the lowest factor provided in the table is used as the adjustment factor.

Standard Conditions – Relatively New Equipment

The “Average” and “Standby” rates given in Table 2.1 are applicable only for a 40 hour work week. The formulas for adjusting the equipment rates for different work weeks are as follows:

Adjusted Average rate = (Average rate - FCCM) +

(FCCM * [40 hrs / hrs worked per week])

Adjusted Standby rate = (Standby rate - FCCM) +

(FCCM * [40 hrs / hrs worked per week])

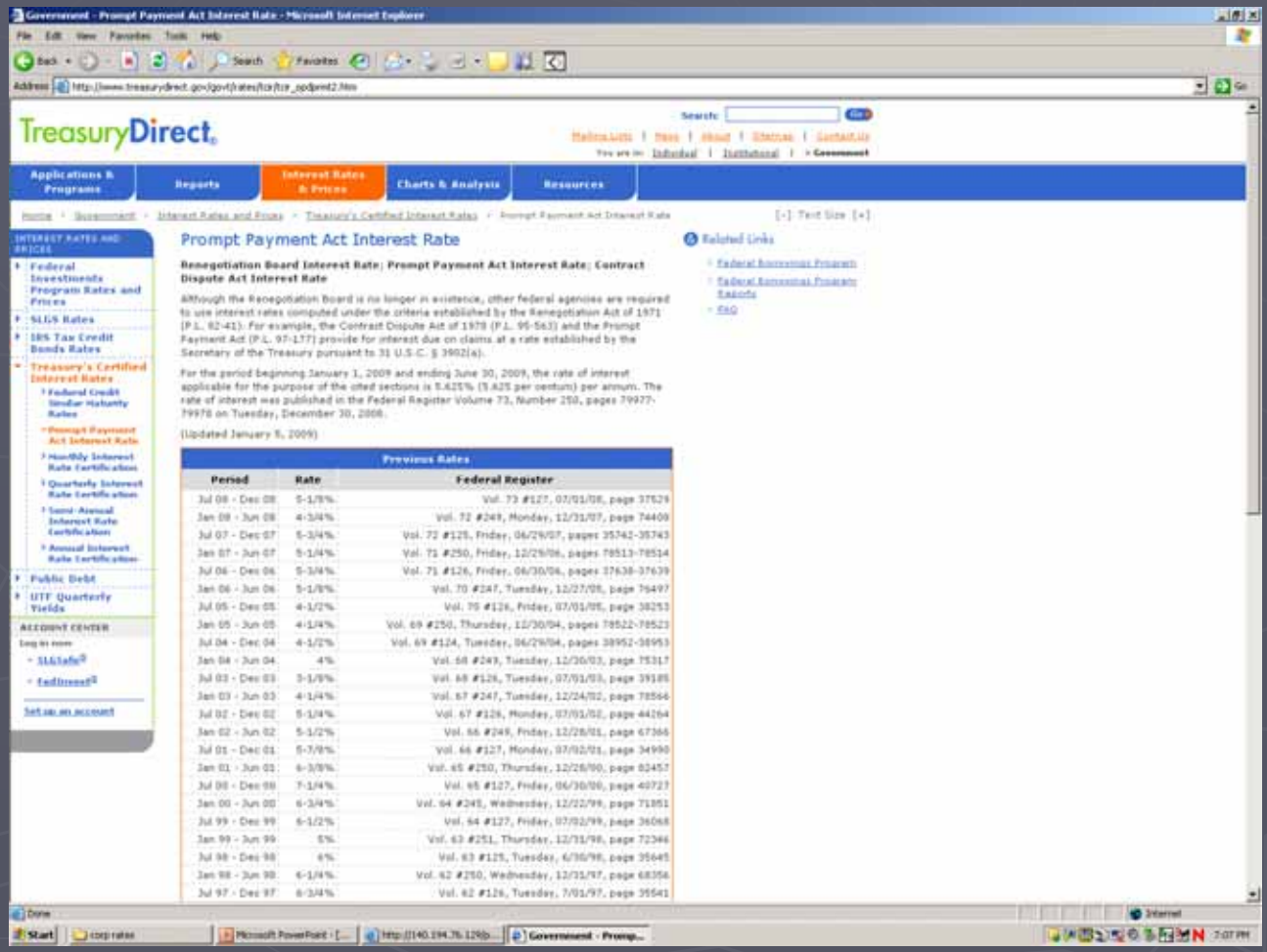
Standard Conditions – Relatively New Equipment

The “Average” and “Standby” rates given in Table 2.1 are applicable only for the Cost-of-Money Rate (CMR) that was in effect at the time of the pamphlets publication. The CMR used in the calculation of the rates is listed in Appendix B of the pamphlet. The current CMR can be looked up on line.

Standard Conditions – Relatively New Equipment

http://www.treasurydirect.gov/govt/rates/tcir/tcir_opdprmt2.htm

Treasury Direct web site provides Cost-of-Money Rates that are updated in January and July of every year.



Standard Conditions – Relatively New Equipment

The formulas for adjusting the equipment rates for different CMR's are as follows:

Adjusted Average rate = (Average rate - FCCM) +

(FCCM * [Current CMR / Appendix B CMR])

Adjusted Standby rate = (Standby rate - FCCM) +

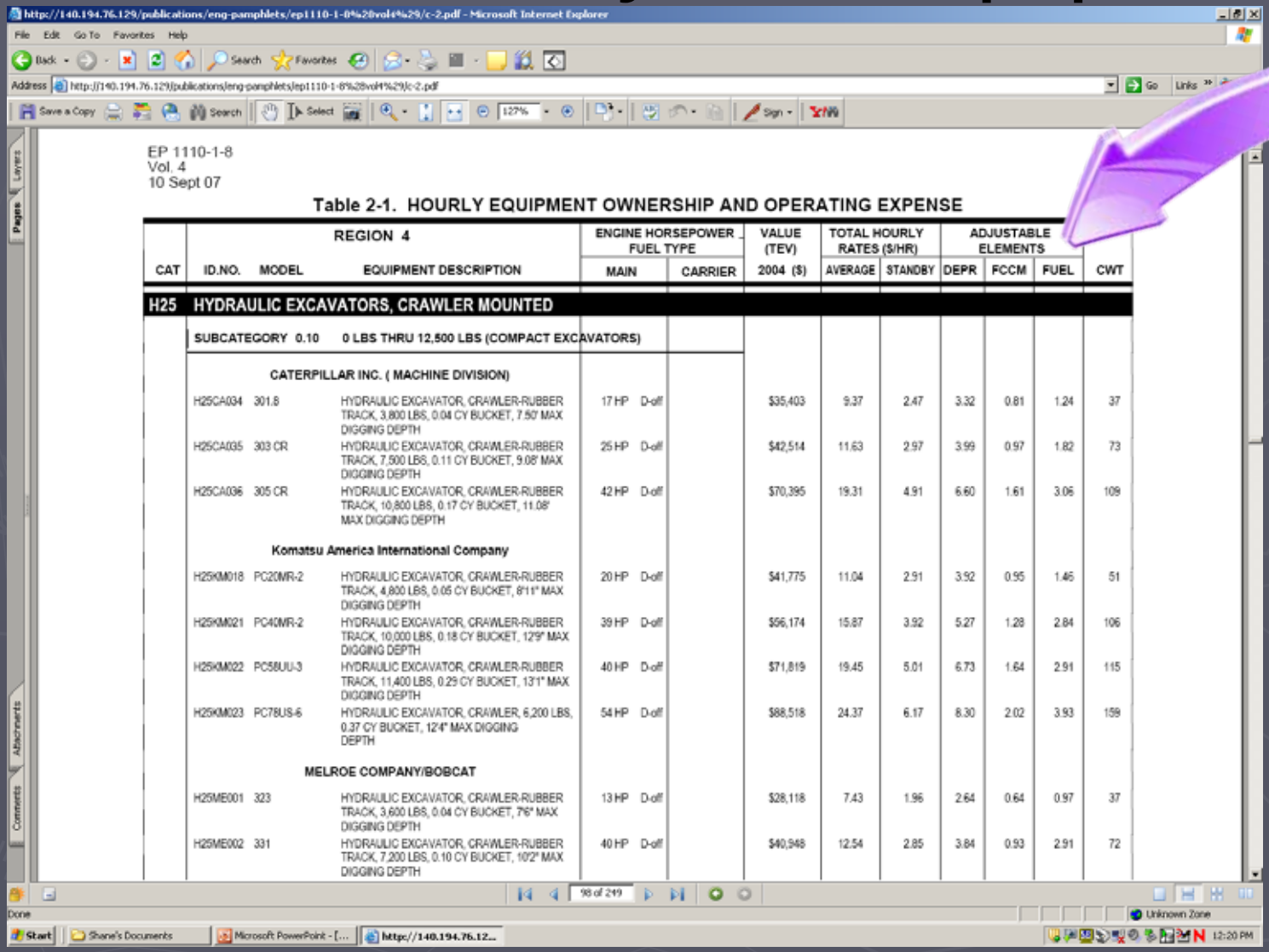
(FCCM * [Current CMR / Appendix B CMR])

Standard Conditions – Relatively New Equipment

The “Average” rate given in Table 2.1 is applicable only for the average fuel prices that existed at the time the pamphlet was published. The fuel prices used for the fuel cost calculations can be found in Appendix B.

Standby Rates do not contain the fuel costs and therefore should not be adjusted due to changes is fuel prices.

Standard Conditions – Relatively New Equipment



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The "Fuel" cost listed here is the average cost of the fuel that is burned in one hour of work.

Standard Conditions – Relatively New Equipment

The formula for adjusting the fuel cost for the equipment rate is as follows:

Adjusted Average rate = (Average rate - FUEL) +

(FUEL * [Current Fuel price/ Appendix B fuel price])

Standard Conditions – Relatively New Equipment

If the FOG rate is known, it can be adjusted by the same ratio as the fuel rate. There are no rate adjustments for repairs, tire wear, or tire repair.

Examples of all of these rate adjustments can be found in Chapter Three of the pamphlet.

Standard Conditions – Relatively New Equipment

On pieces of equipment such as end dump trucks and truck mounted cranes, be sure to look up the rates for both the carrier and the equipment and adjust the rates for both as necessary.

Also be sure to look up any attachments that are being used by the equipment and add those costs into the equipment rates.

Standard Conditions – Relatively New Equipment

The IGE hourly rate for equipment =

ACOE equipment rate
+ Average hourly labor rate
+ Profit
+ Overhead
+ Bond
+ Verifiable miscellaneous expenses

Severe Conditions, Changing Economic Climate, Older Equipment

Hourly equipment rates are calculated using

Check Rate Program.

ACOE Check Rate calculated hourly rates do not include –

- Labor Costs
- Profit
- Overhead
- Licensing fees
- Security

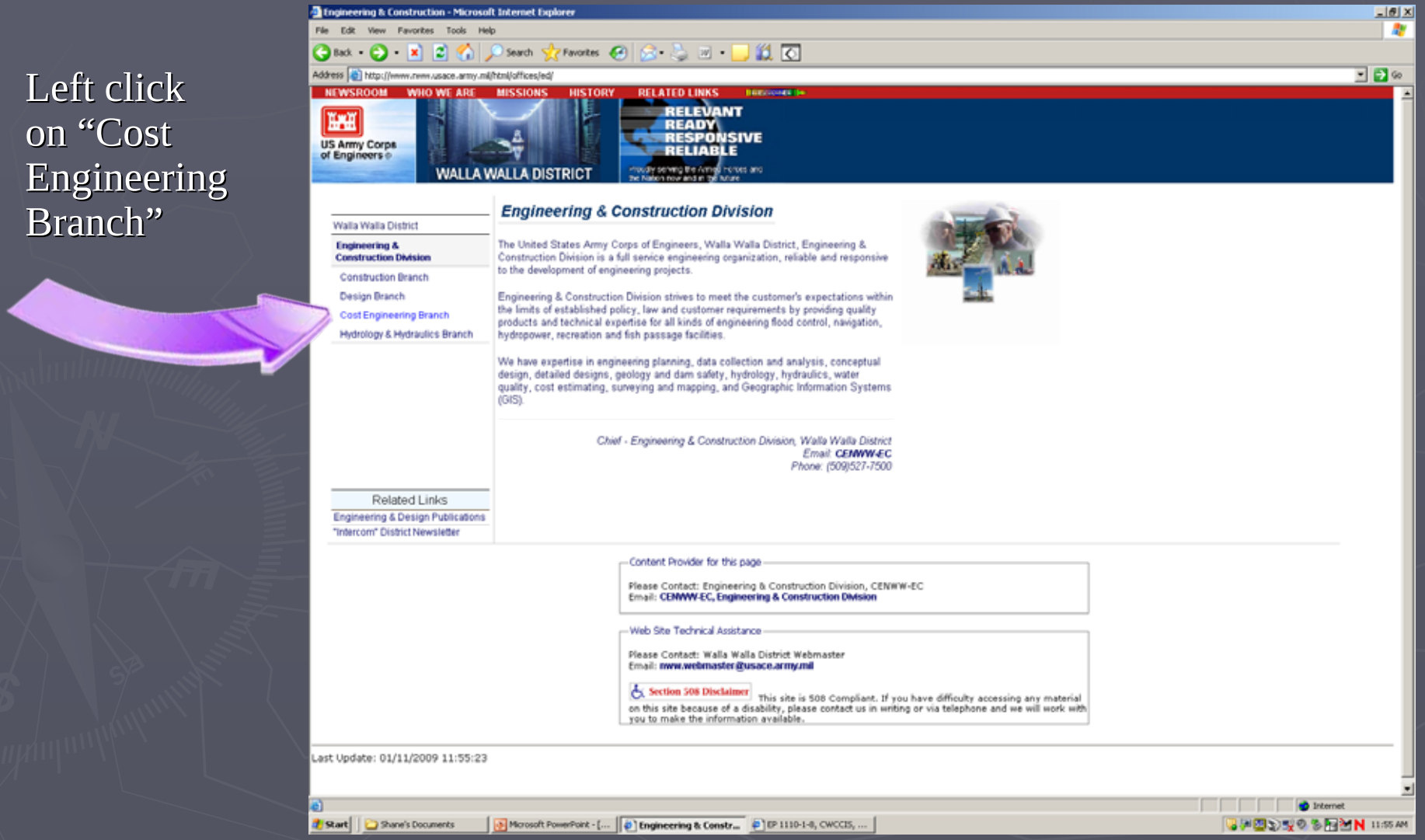
Severe Conditions, Changing Economic Climate, Older Equipment

Left click on "Engineering and Construction".

http://www.nww.usace.army.mil/

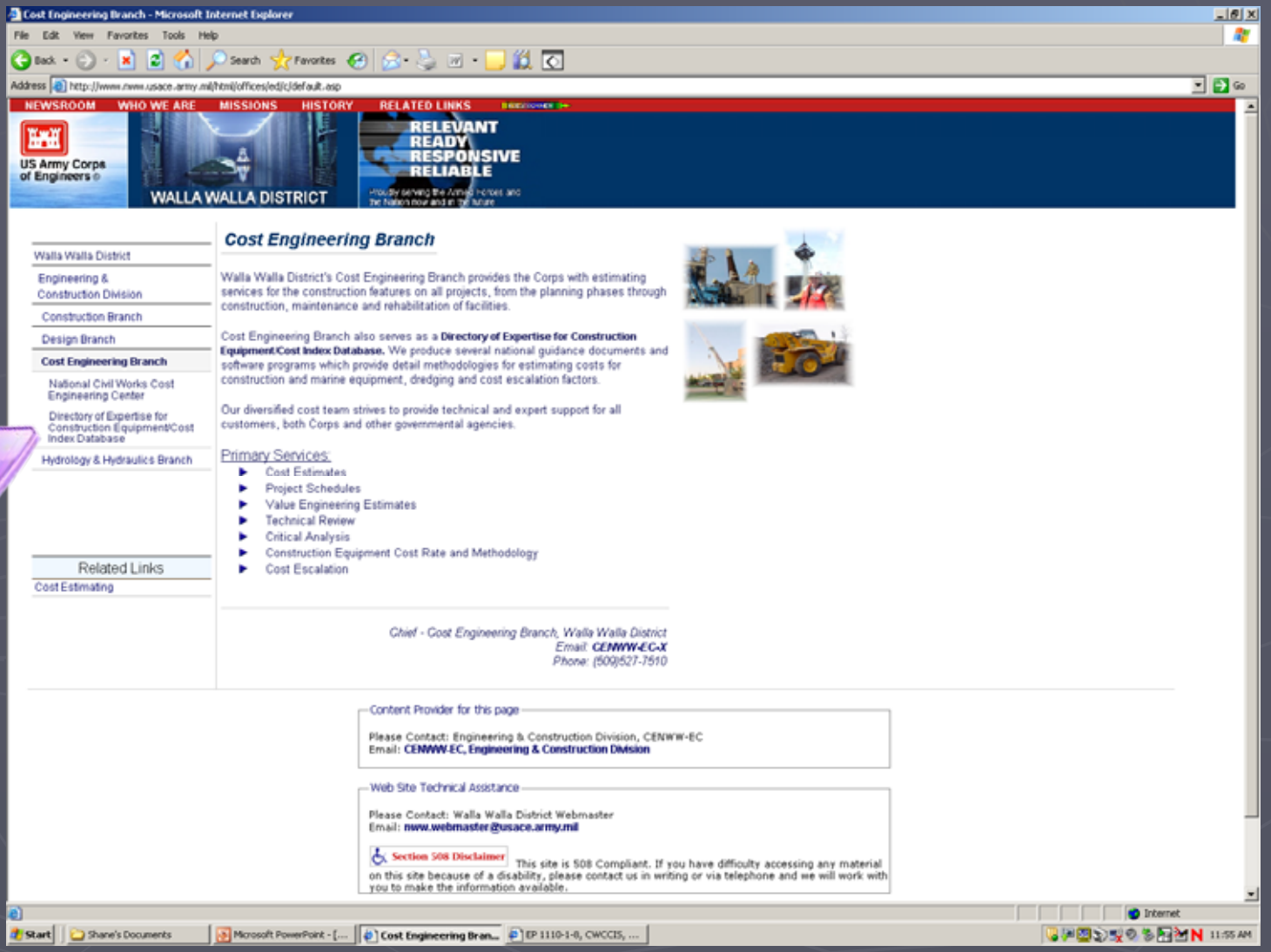
Severe Conditions, Changing Economic Climate, Older Equipment

Left click on “Cost Engineering Branch”



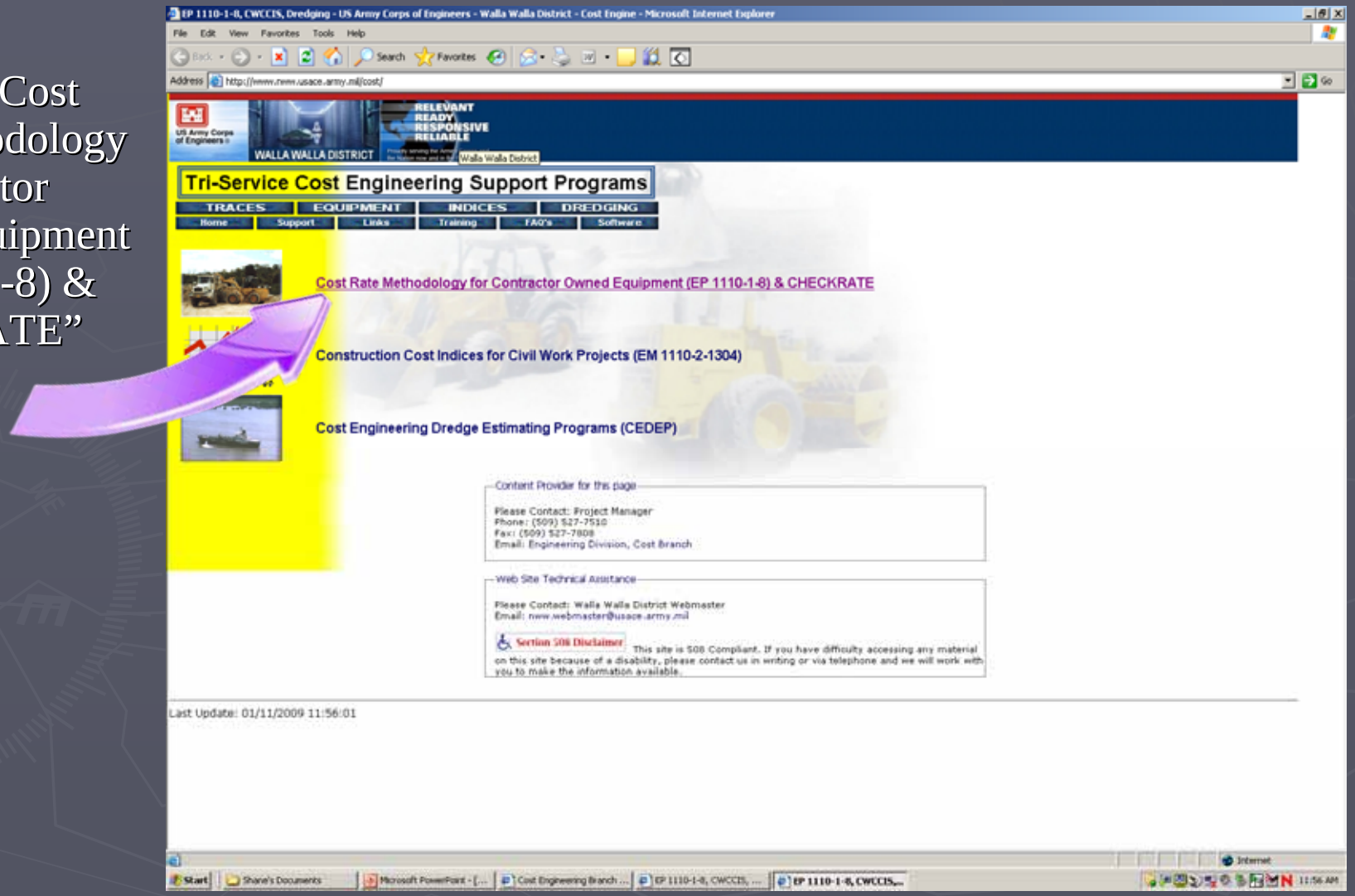
Severe Conditions, Changing Economic Climate, Older Equipment

Left click on "Directory of Expertise for Construction Equipment / Cost Index Database"



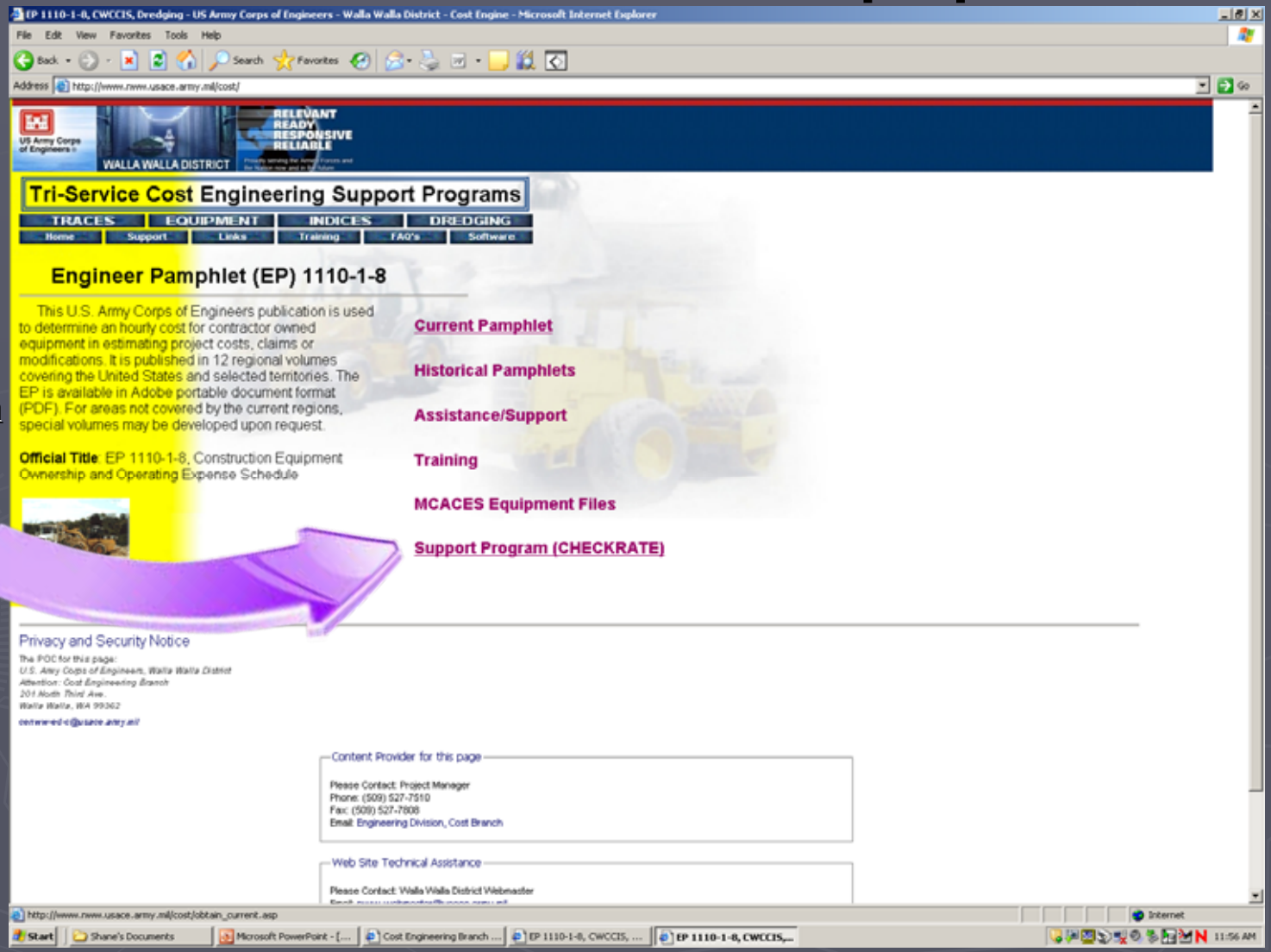
Severe Conditions, Changing Economic Climate, Older Equipment

Left click “Cost Rate Methodology for Contractor Owned Equipment (EP 1110-1-8) & CHECKRATE”



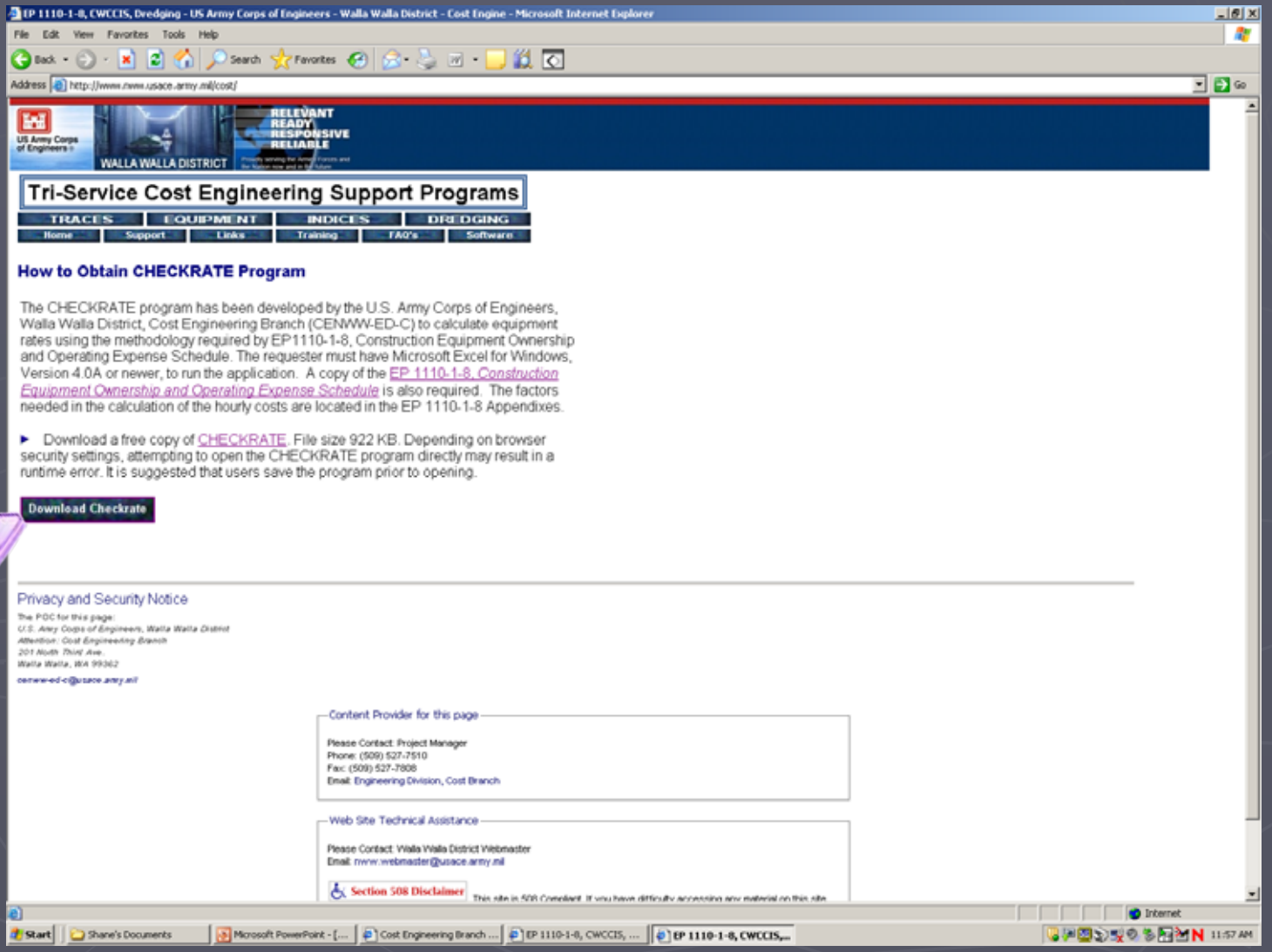
Severe Conditions, Changing Economic Climate, Older Equipment

Left click on "Support Program (CHECKRATE)"



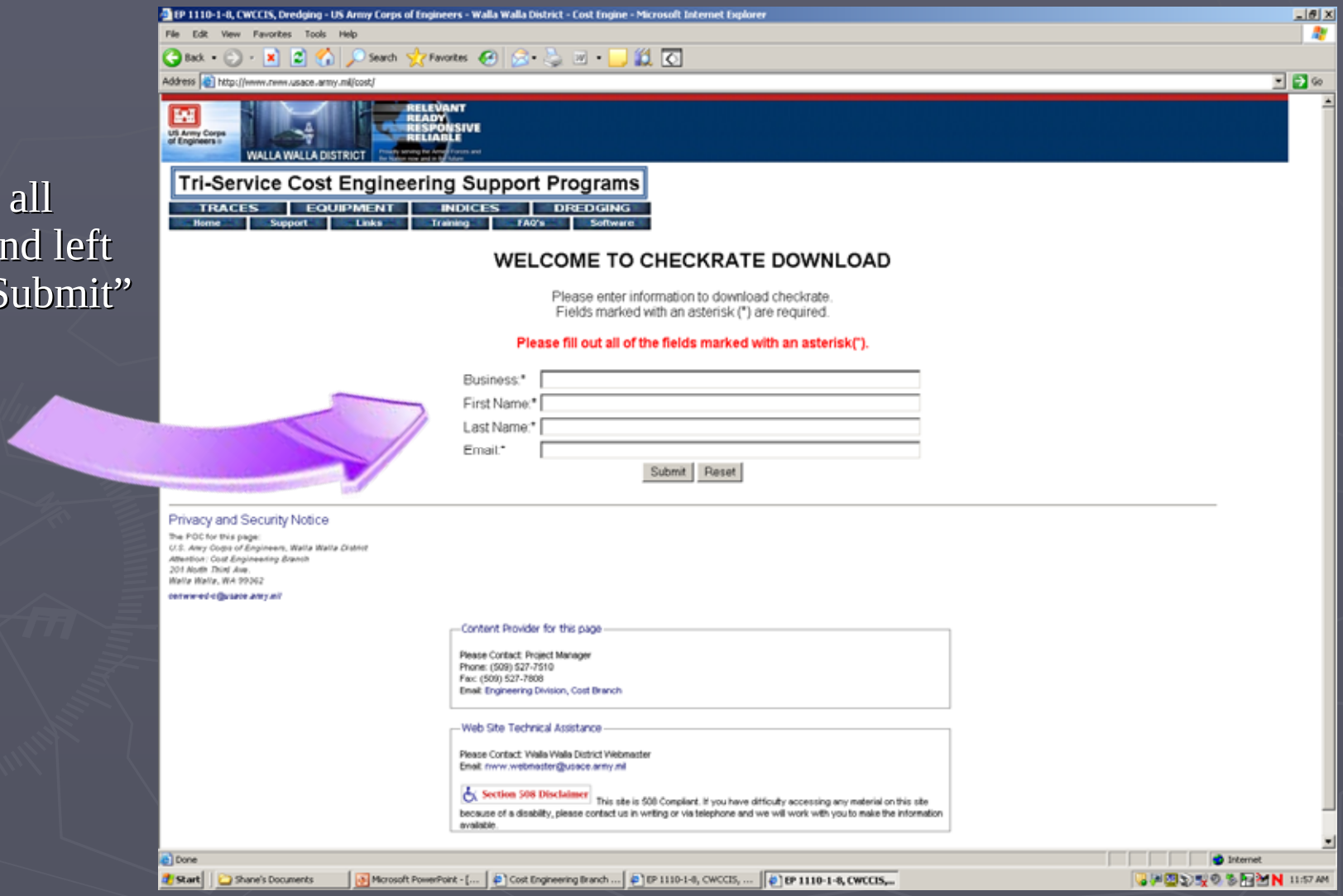
Severe Conditions, Changing Economic Climate, Older Equipment

Left click on "Download Checkrate"



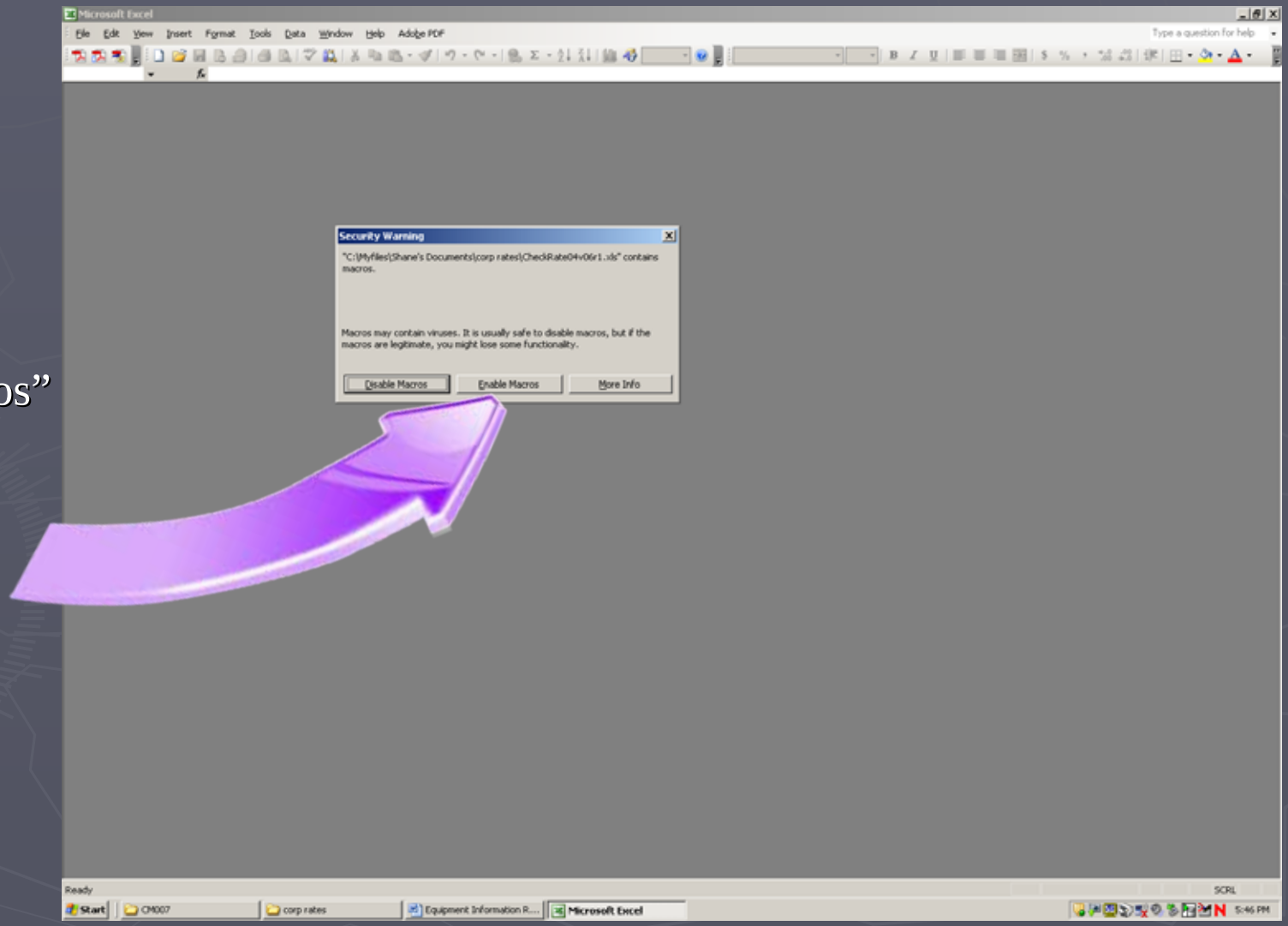
Severe Conditions, Changing Economic Climate, Older Equipment

Fill out all fields and left click “Submit”



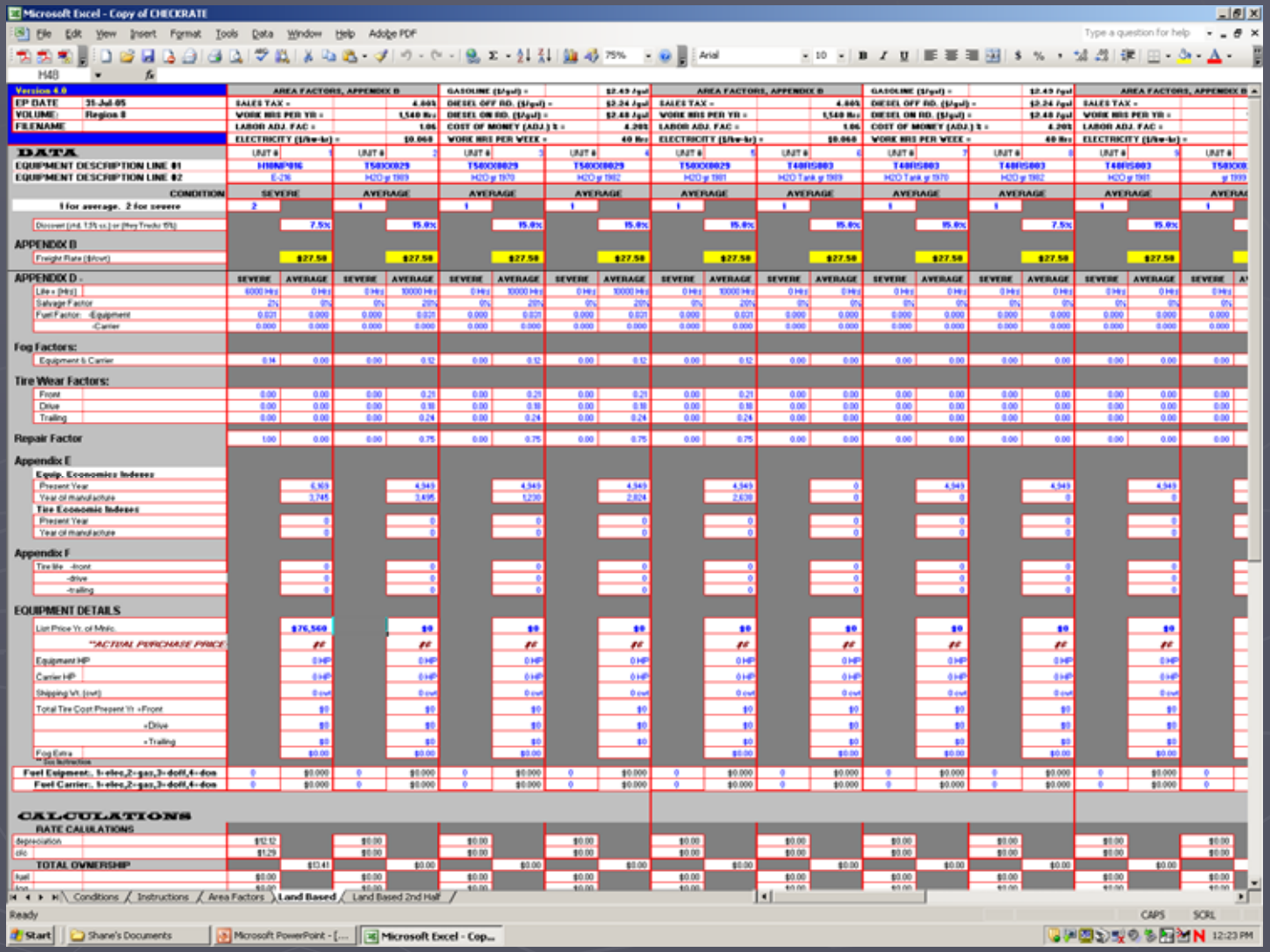
Severe Conditions, Changing Economic Climate, Older Equipment

Left click on “Enable Macros” button.



Severe Conditions, Changing Economic Climate, Older Equipment

This is what the Checkrate program should look like.

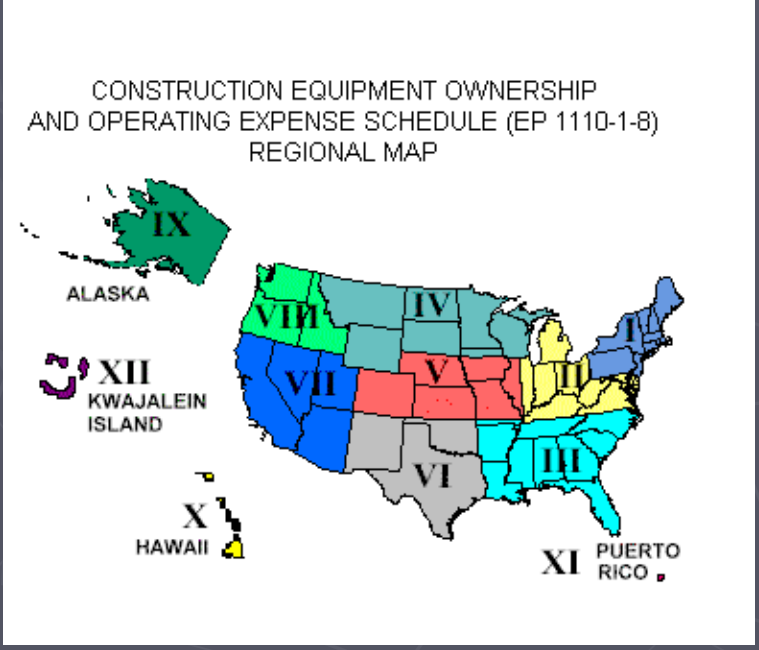


Severe Conditions, Changing Economic Climate, Older Equipment

US Army Corps of Engineers

Publication Number: **EP 1110-1-8**

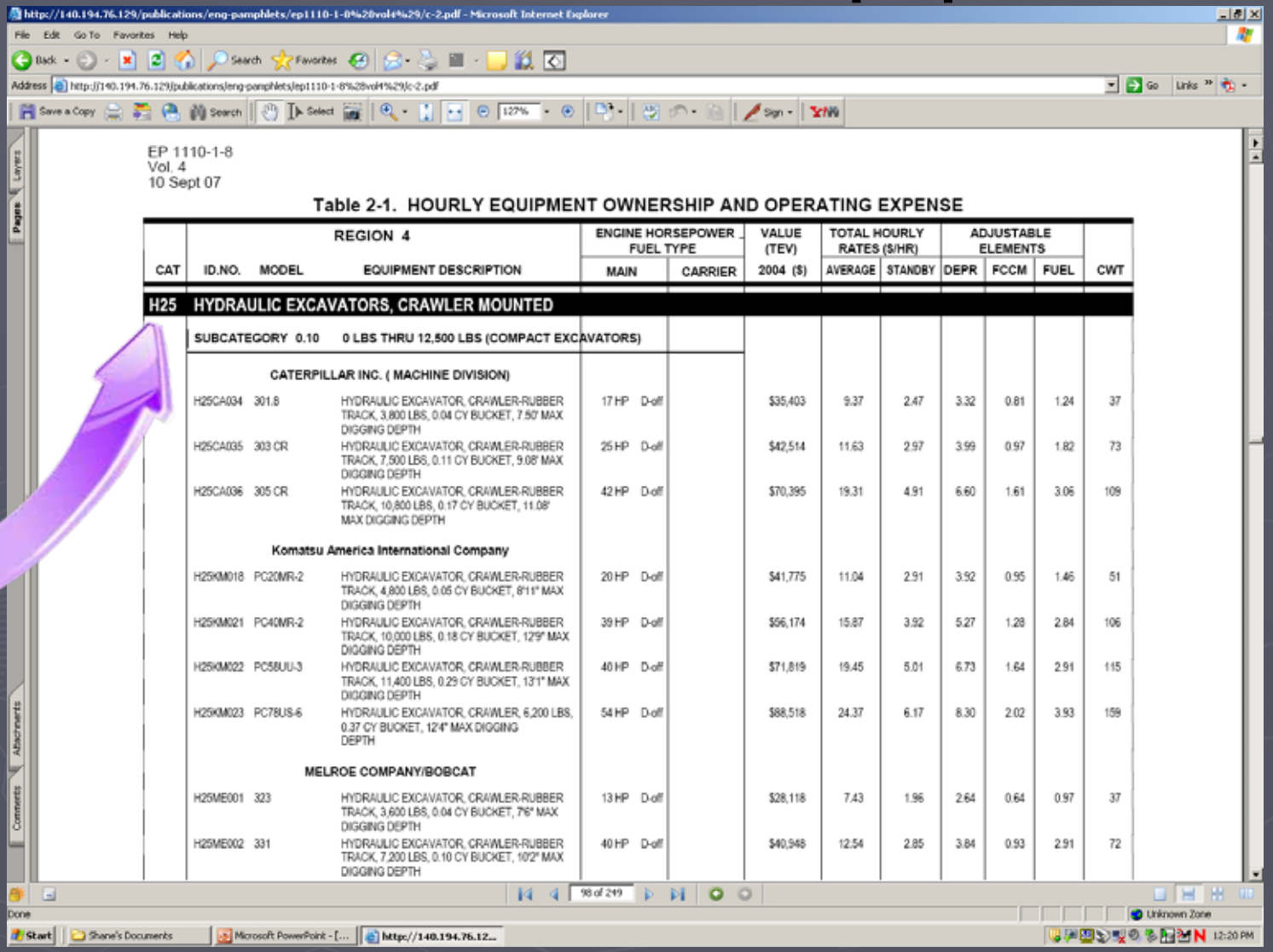
Construction Equipment Ownership and Operating Expense Schedule



Although the rates are now being calculated using Check Rate instead of being looked up in tables, much of the needed information for the calculations is found in the appendix of the regional pamphlets that were used in the previous example.

Severe Conditions, Changing Economic Climate, Older Equipment

Knowing the category number for each piece of equipment (found in Chapter 2) makes looking up the factors in the appendix easier.



http://140.194.76.129/publications/eng-pamphlets/ep1110-1-8%28vol4%29/c-2.pdf - Microsoft Internet Explorer

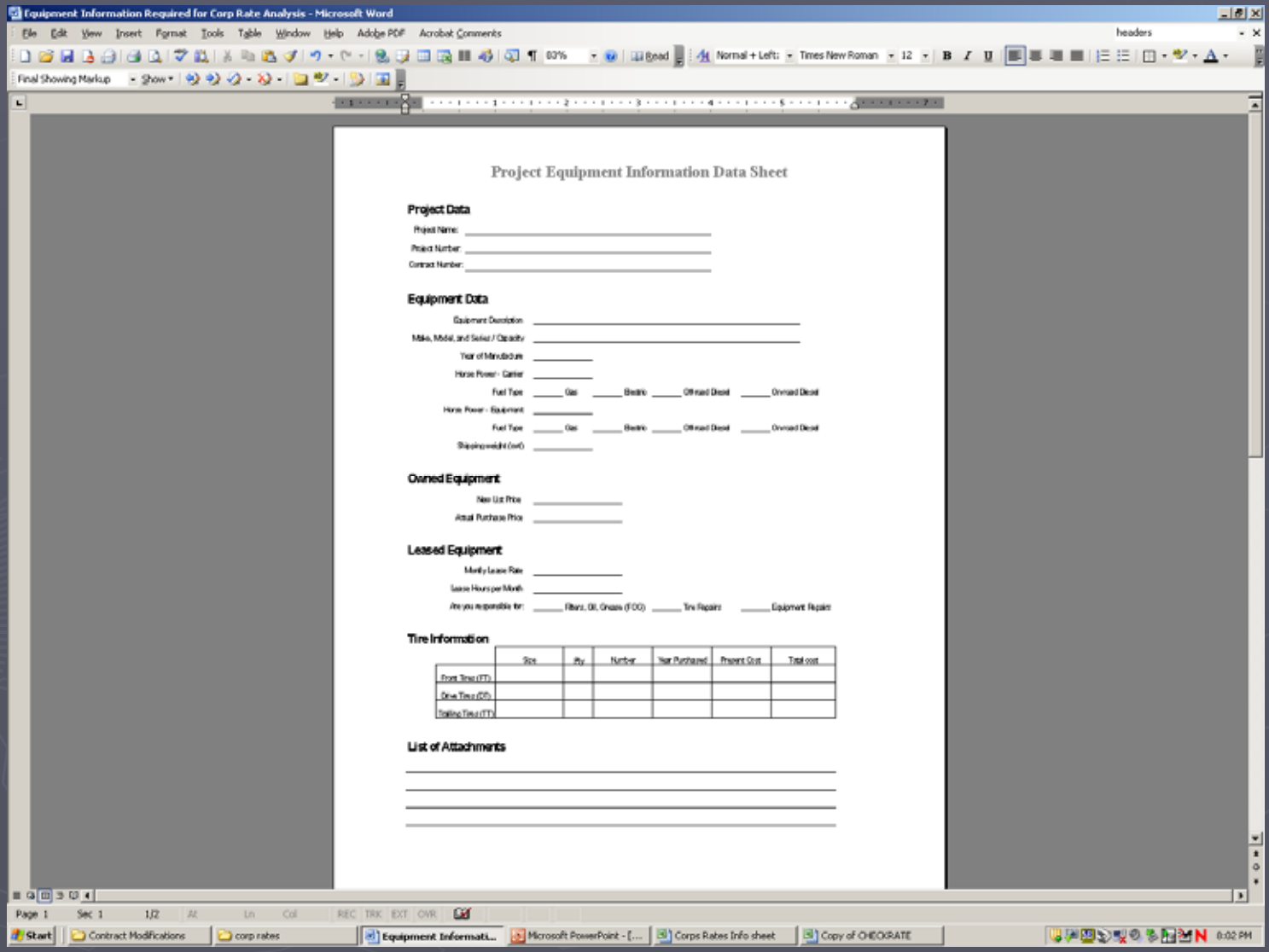
EP 1110-1-8
Vol. 4
10 Sept 07

Table 2-1. HOURLY EQUIPMENT OWNERSHIP AND OPERATING EXPENSE

CAT	ID.NO.	MODEL	EQUIPMENT DESCRIPTION	REGION 4 ENGINE HORSEPOWER FUEL TYPE MAIN	CARRIER	VALUE (TEV) 2004 ($)	TOTAL HOURLY RATES ($/HR) AVERAGE	STANDBY	ADJUSTABLE ELEMENTS DEPR	FCCM	FUEL	CWT
H25	**HYDRAULIC EXCAVATORS, CRAWLER MOUNTED**											
	SUBCATEGORY 0.10		**0 LBS THRU 12,500 LBS (COMPACT EXCAVATORS)**									
			CATERPILLAR INC. (MACHINE DIVISION)									
	H25CA034	301.8	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 3,800 LBS, 0.04 CY BUCKET, 7.50' MAX DIGGING DEPTH	17 HP D-off		$35,403	9.37	2.47	3.32	0.81	1.24	37
	H25CA035	303 CR	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 7,500 LBS, 0.11 CY BUCKET, 9.08' MAX DIGGING DEPTH	25 HP D-off		$42,514	11.63	2.97	3.99	0.97	1.82	73
	H25CA036	305 CR	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 10,800 LBS, 0.17 CY BUCKET, 11.08' MAX DIGGING DEPTH	42 HP D-off		$70,395	19.31	4.91	6.60	1.61	3.06	109
			Komatsu America International Company									
	H25KM018	PC20MR-2	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 4,800 LBS, 0.05 CY BUCKET, 8'11" MAX DIGGING DEPTH	20 HP D-off		$41,775	11.04	2.91	3.92	0.95	1.46	51
	H25KM021	PC40MR-2	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 10,000 LBS, 0.18 CY BUCKET, 12'9" MAX DIGGING DEPTH	39 HP D-off		$56,174	15.87	3.92	5.27	1.28	2.84	106
	H25KM022	PC58UU-3	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 11,400 LBS, 0.29 CY BUCKET, 13'1" MAX DIGGING DEPTH	40 HP D-off		$71,819	19.45	5.01	6.73	1.64	2.91	115
	H25KM023	PC78US-6	HYDRAULIC EXCAVATOR, CRAWLER, 6,200 LBS, 0.37 CY BUCKET, 12'4" MAX DIGGING DEPTH	54 HP D-off		$88,518	24.37	6.17	8.30	2.02	3.93	159
			MELROE COMPANY/BOBCAT									
	H25ME001	323	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 3,600 LBS, 0.04 CY BUCKET, 7'6" MAX DIGGING DEPTH	13 HP D-off		$28,118	7.43	1.96	2.64	0.64	0.97	37
	H25ME002	331	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 7,200 LBS, 0.10 CY BUCKET, 10'2" MAX DIGGING DEPTH	40 HP D-off		$40,948	12.54	2.85	3.84	0.93	2.91	72

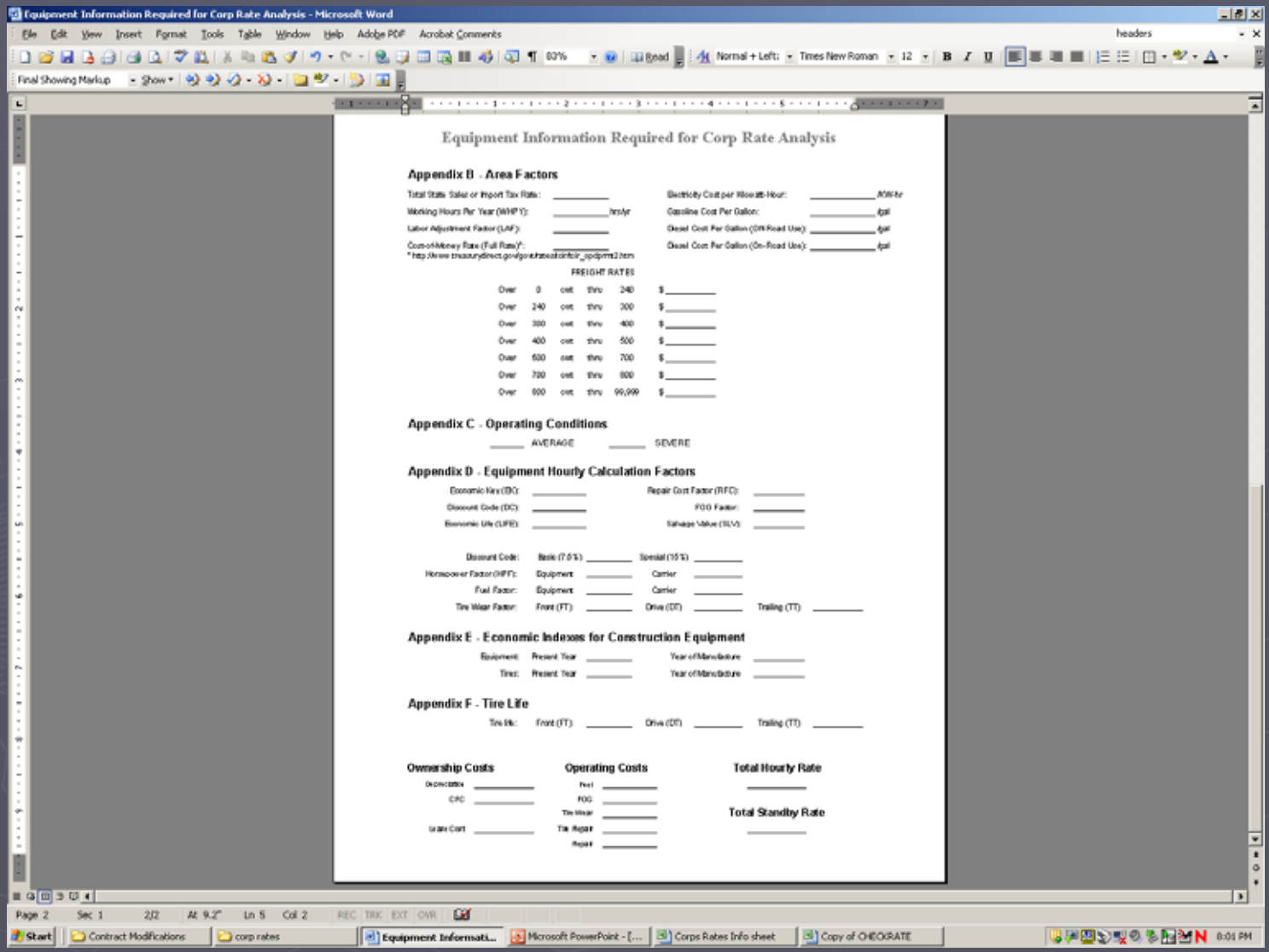
Severe Conditions, Changing Economic Climate, Older Equipment

The front side of this sheet should be filled out by the contractor.



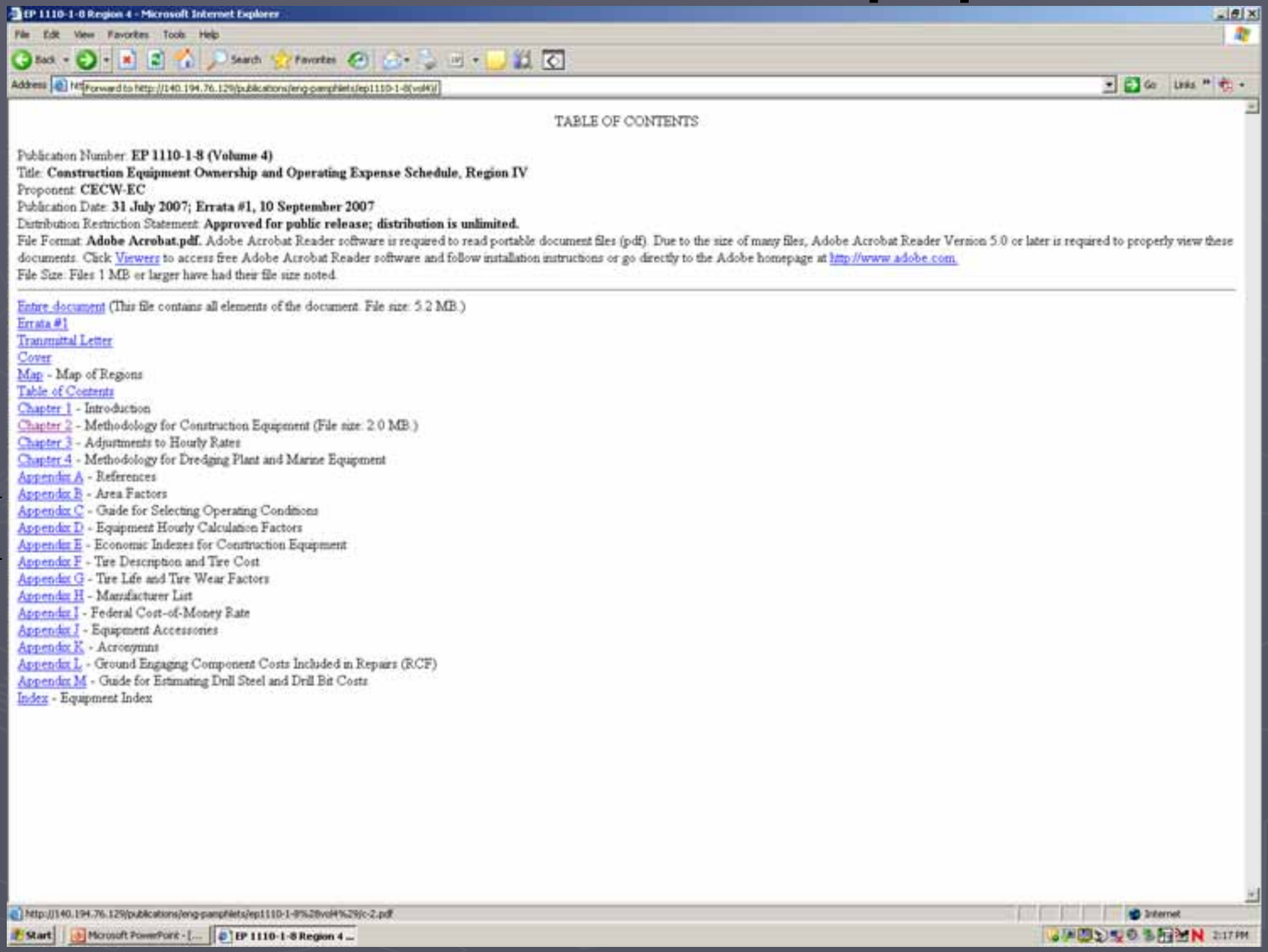
Severe Conditions, Changing Economic Climate, Older Equipment

The back side of this sheet should be used to document the factors for checkrate and the final hourly rates.



Severe Conditions, Changing Economic Climate, Older Equipment

Appendix B, C, D, E, and F are used in the calculations for the checkrate program



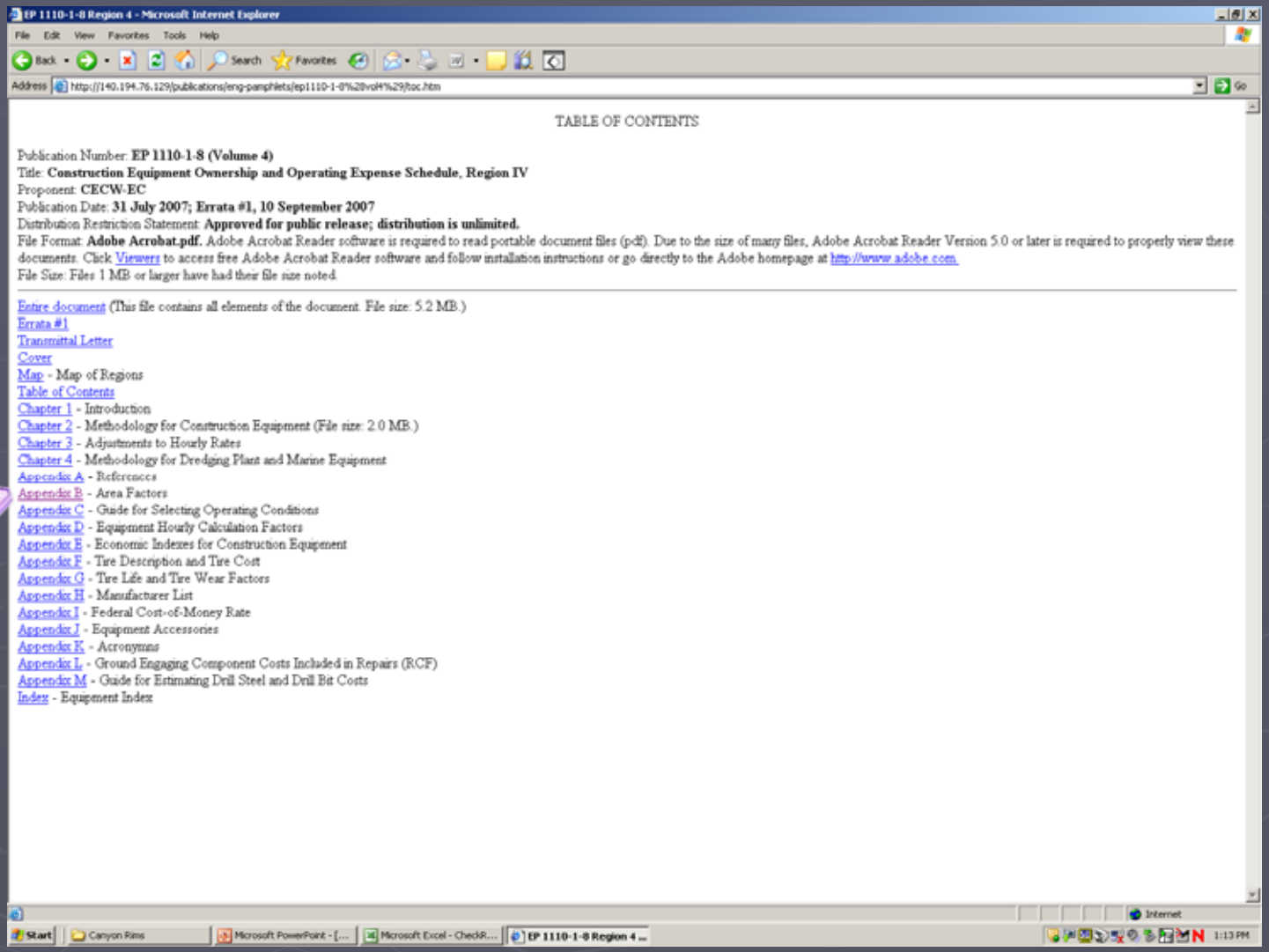
EP 1110-1-8 Region 4 - Microsoft Internet Explorer

TABLE OF CONTENTS

Publication Number: **EP 1110-1-8 (Volume 4)**
Title: **Construction Equipment Ownership and Operating Expense Schedule, Region IV**
Proponent: **CECW-EC**
Publication Date: **31 July 2007; Errata #1, 10 September 2007**
Distribution Restriction Statement: **Approved for public release; distribution is unlimited.**
File Format: **Adobe Acrobat.pdf.** Adobe Acrobat Reader software is required to read portable document files (pdf). Due to the size of many files, Adobe Acrobat Reader Version 5.0 or later is required to properly view these documents. Click Viewers to access free Adobe Acrobat Reader software and follow installation instructions or go directly to the Adobe homepage at http://www.adobe.com.
File Size: Files 1 MB or larger have had their file size noted.

Severe Conditions, Changing Economic Climate, Older Equipment

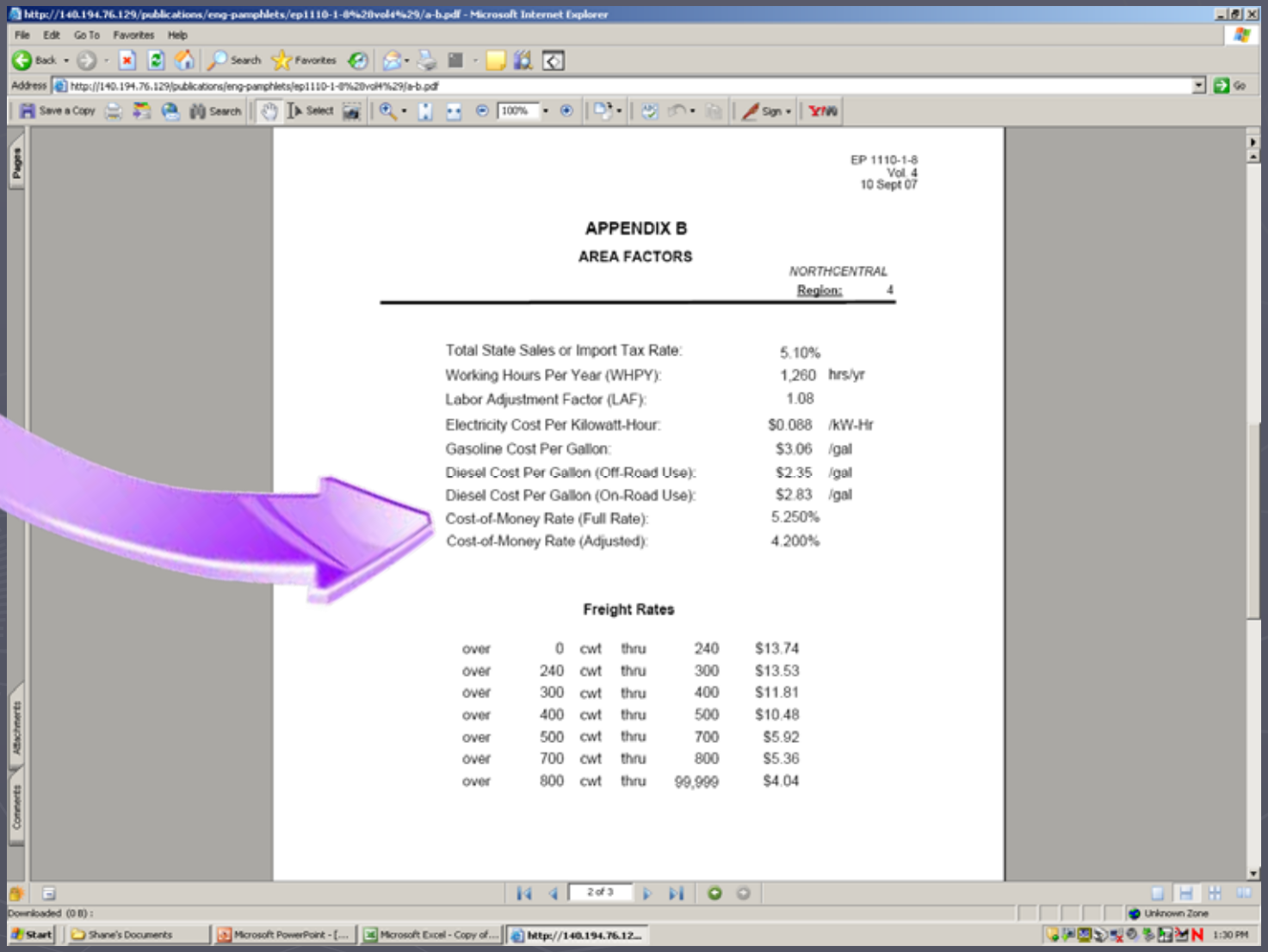
Area Factors such as sales tax, price of fuel, etc. are found in Appendix B.



Severe Conditions, Changing Economic Climate, Older Equipment

Use current, site specific information when possible. Cost-of-Money Rate is available on the web.

The Cost-of-Money rate listed on the web is the “Full Rate”. The checkrate program will automatically adjust the rate.



EP 1110-1-8
Vol. 4
10 Sept 07

APPENDIX B

AREA FACTORS

	NORTHCENTRAL Region: 4	
Total State Sales or Import Tax Rate:	5.10%	
Working Hours Per Year (WHPY):	1,260	hrs/yr
Labor Adjustment Factor (LAF):	1.08	
Electricity Cost Per Kilowatt-Hour:	$0.088	/kW-Hr
Gasoline Cost Per Gallon:	$3.06	/gal
Diesel Cost Per Gallon (Off-Road Use):	$2.35	/gal
Diesel Cost Per Gallon (On-Road Use):	$2.83	/gal
Cost-of-Money Rate (Full Rate):	5.250%	
Cost-of-Money Rate (Adjusted):	4.200%	

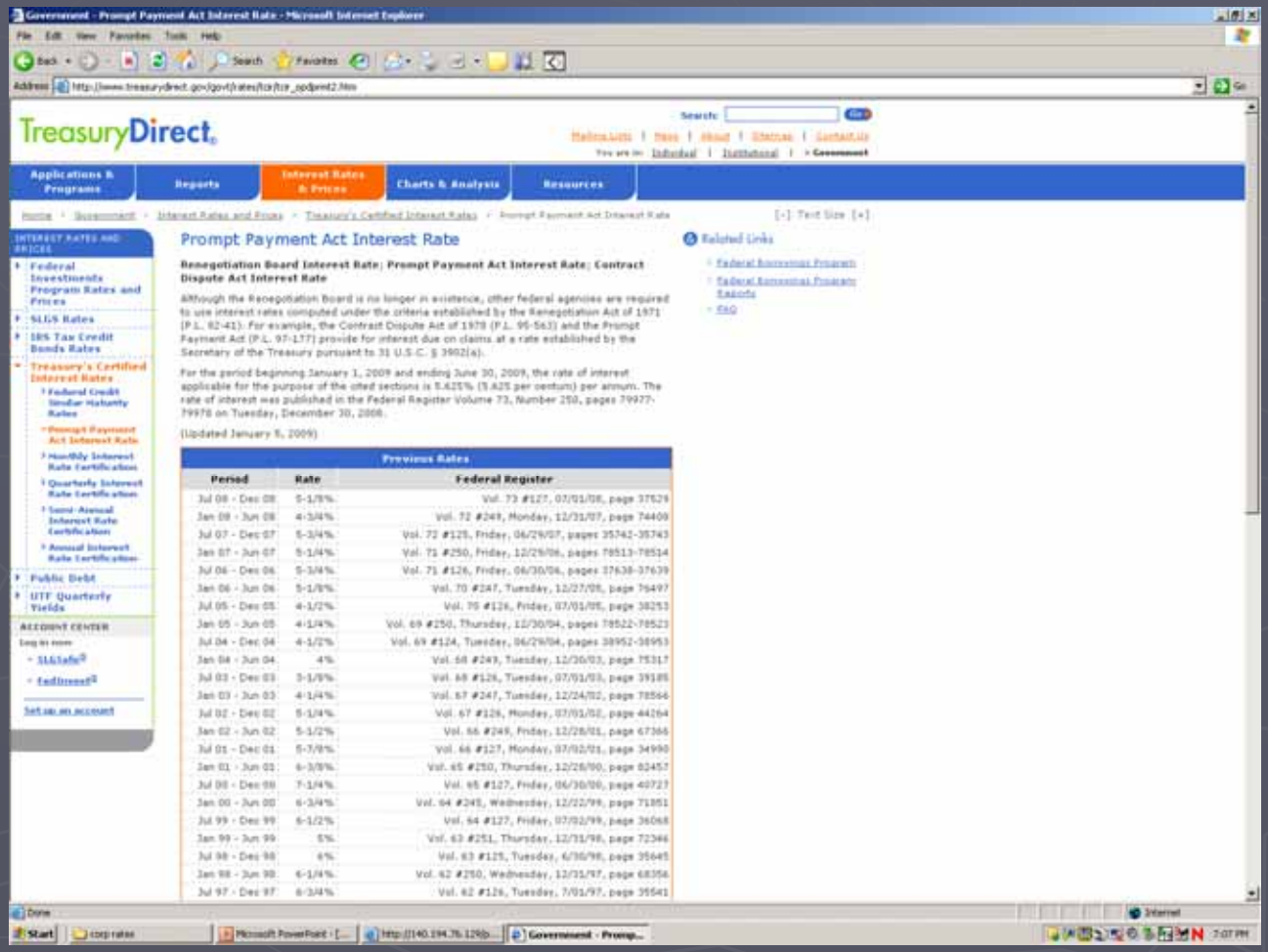
Freight Rates

over	0	cwt	thru	240	$13.74
over	240	cwt	thru	300	$13.53
over	300	cwt	thru	400	$11.81
over	400	cwt	thru	500	$10.48
over	500	cwt	thru	700	$5.92
over	700	cwt	thru	800	$5.36
over	800	cwt	thru	99,999	$4.04

Severe Conditions, Changing Economic Climate, Older Equipment

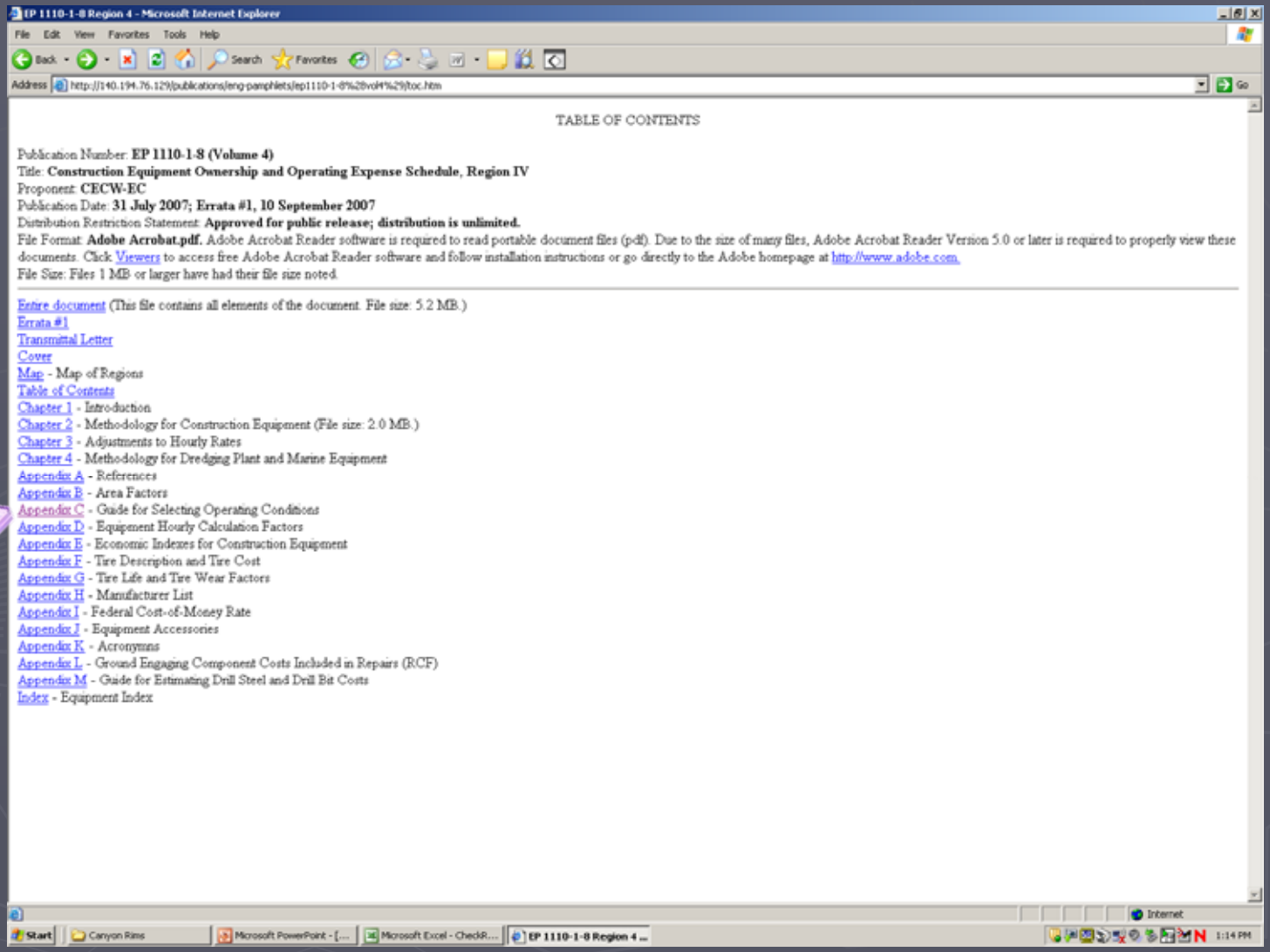
http://www.treasurydirect.gov/govt/rates/tcir/tcir_opdprmt2.htm

Treasury Direct web site provides Cost-of-Money Rates that are updated in January and July of every year.



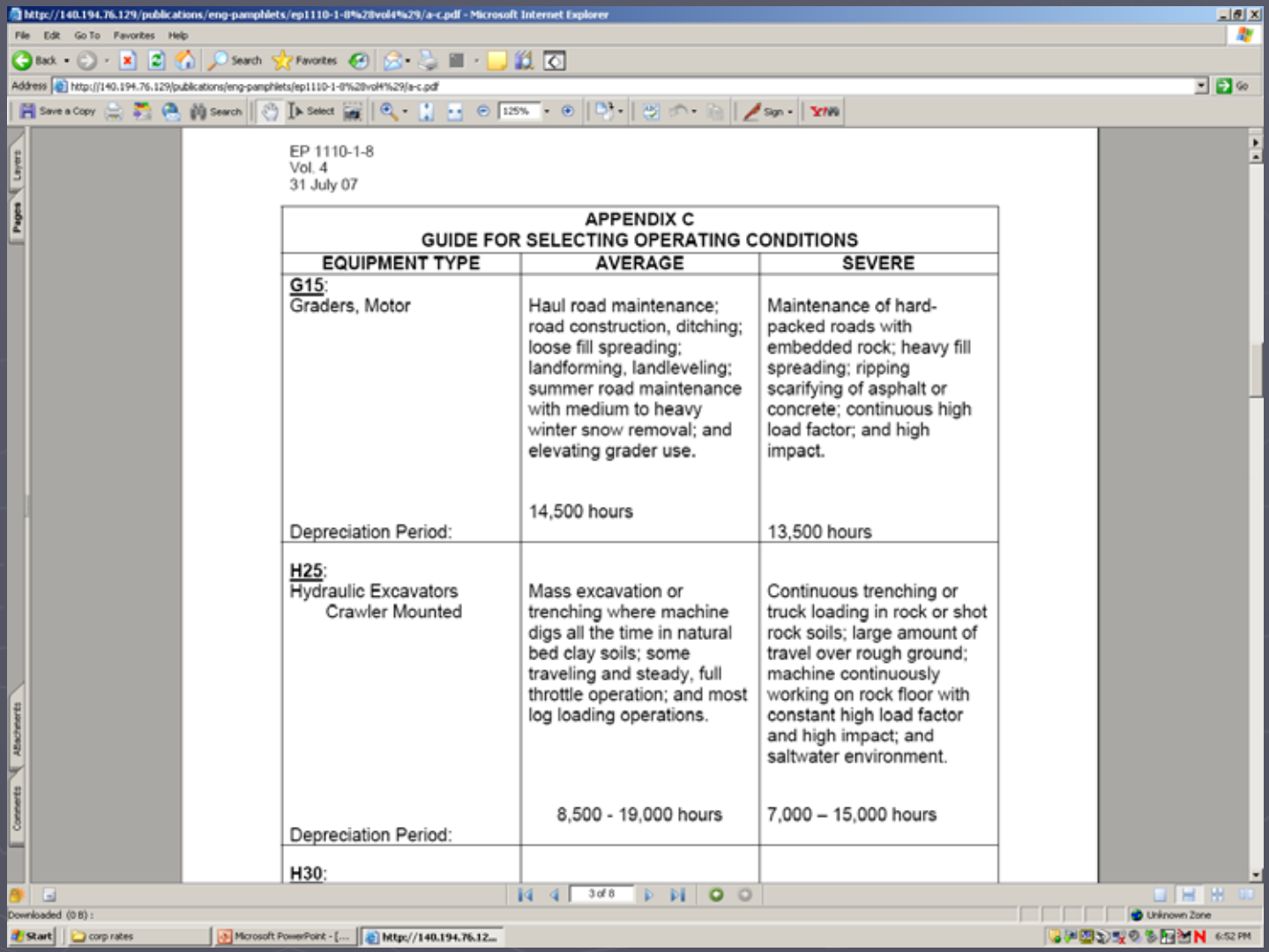
Severe Conditions, Changing Economic Climate, Older Equipment

Operating conditions are found in Appendix C.



Severe Conditions, Changing Economic Climate, Older Equipment

The ACOE also recognizes a "Difficult" rating for the operating conditions. The equipment rate for "Difficult" is defined as the arithmetic mean of the "Average" and the "Severe" rates.



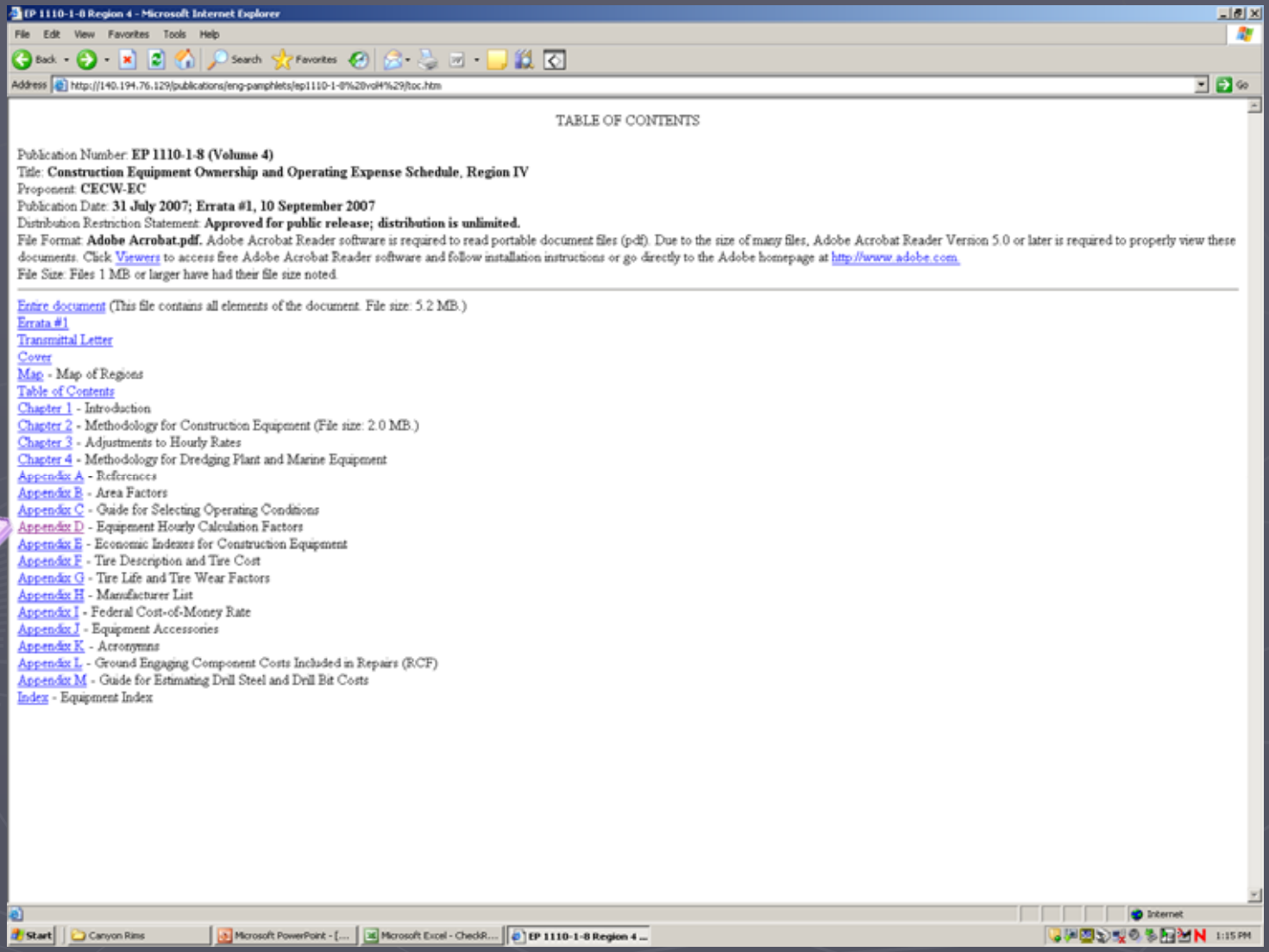
EP 1110-1-8
Vol. 4
31 July 07

APPENDIX C
GUIDE FOR SELECTING OPERATING CONDITIONS

EQUIPMENT TYPE	AVERAGE	SEVERE
G15: Graders, Motor	Haul road maintenance; road construction, ditching; loose fill spreading; landforming, landleveling; summer road maintenance with medium to heavy winter snow removal; and elevating grader use.	Maintenance of hard-packed roads with embedded rock; heavy fill spreading; ripping scarifying of asphalt or concrete; continuous high load factor; and high impact.
Depreciation Period:	14,500 hours	13,500 hours
H25: Hydraulic Excavators Crawler Mounted	Mass excavation or trenching where machine digs all the time in natural bed clay soils; some traveling and steady, full throttle operation; and most log loading operations.	Continuous trenching or truck loading in rock or shot rock soils; large amount of travel over rough ground; machine continuously working on rock floor with constant high load factor and high impact; and saltwater environment.
Depreciation Period:	8,500 - 19,000 hours	7,000 – 15,000 hours
H30:		

Severe Conditions, Changing Economic Climate, Older Equipment

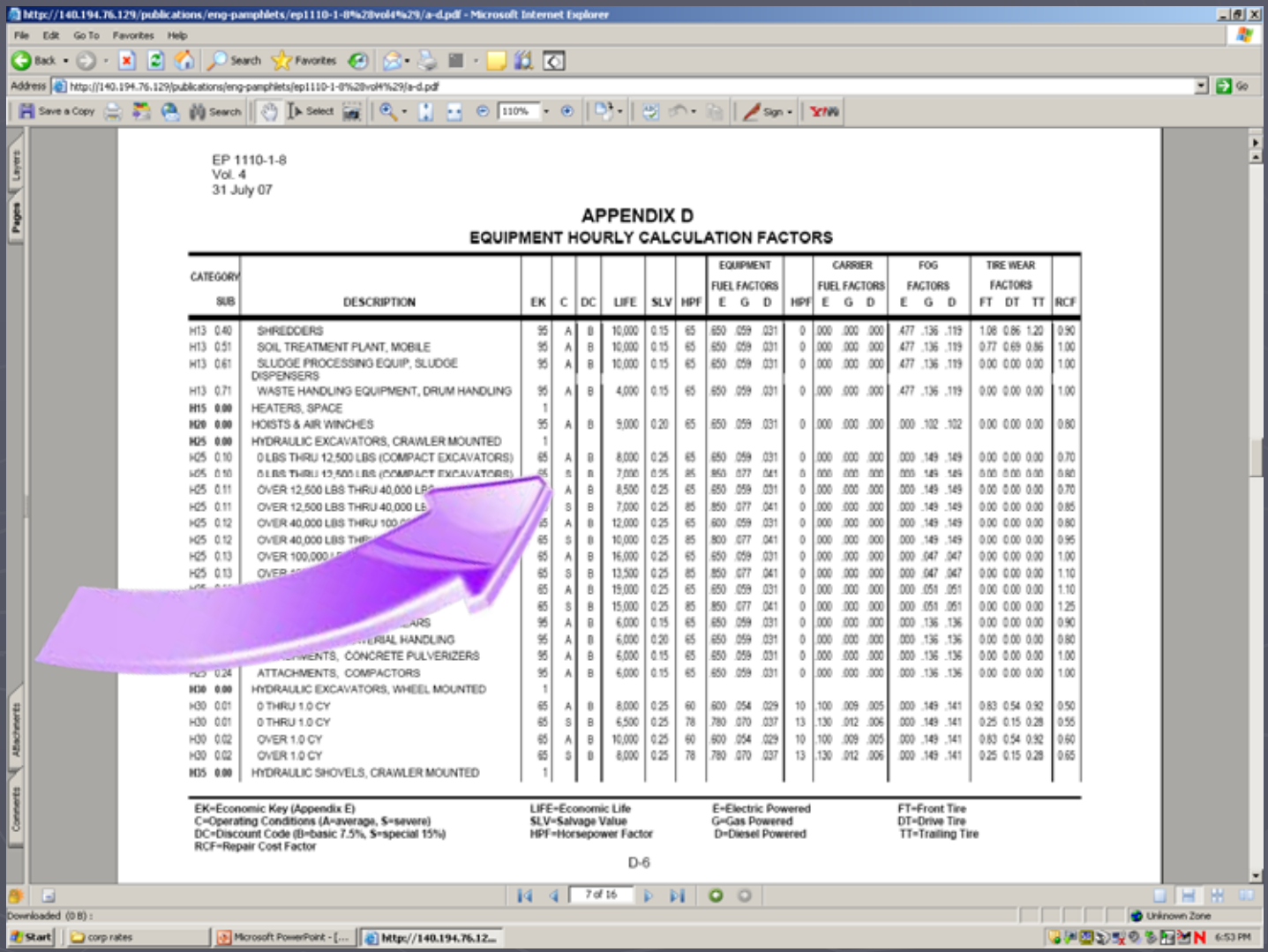
Equipment factors such as the fuel factor, the FOG factor, etc are found in Appendix D.



Severe Conditions, Changing Economic Climate, Older Equipment

Make sure that the factors that you get from this table match the operating condition that you selected in Appendix C.

In this example, there are different factors for Average (A) and Severe (S) operating conditions.



EP 1110-1-8
Vol. 4
31 July 07

APPENDIX D
EQUIPMENT HOURLY CALCULATION FACTORS

CATEGORY SUB	DESCRIPTION	EK	C	DC	LIFE	SLV	HPF	EQUIPMENT FUEL FACTORS E	G	D	HPF	CARRIER FUEL FACTORS E	G	D	FOG FACTORS E	G	D	TIRE WEAR FACTORS FT	DT	TT	RCF
H13 0.40	SHREDDERS	95	A	B	10,000	0.15	65	.650	.059	.031	0	.000	.000	.000	.477	.136	.119	1.08	0.86	1.20	0.90
H13 0.51	SOIL TREATMENT PLANT, MOBILE	95	A	B	10,000	0.15	65	.650	.059	.031	0	.000	.000	.000	.477	.136	.119	0.77	0.69	0.86	1.00
H13 0.61	SLUDGE PROCESSING EQUIP, SLUDGE DISPENSERS	95	A	B	10,000	0.15	65	.650	.059	.031	0	.000	.000	.000	.477	.136	.119	0.00	0.00	0.00	1.00
H13 0.71	WASTE HANDLING EQUIPMENT, DRUM HANDLING	95	A	B	4,000	0.15	65	.650	.059	.031	0	.000	.000	.000	.477	.136	.119	0.00	0.00	0.00	1.00
H15 0.00	HEATERS, SPACE	1																			
H20 0.00	HOISTS & AIR WINCHES	95	A	B	9,000	0.20	65	.650	.059	.031	0	.000	.000	.000	.000	.102	.102	0.00	0.00	0.00	0.80
H25 0.00	HYDRAULIC EXCAVATORS, CRAWLER MOUNTED	1																			
H25 0.10	0 LBS THRU 12,500 LBS (COMPACT EXCAVATORS)	65	A	B	8,000	0.25	65	.650	.059	.031	0	.000	.000	.000	.000	.149	.149	0.00	0.00	0.00	0.70
H25 0.10	0 LBS THRU 12,500 LBS (COMPACT EXCAVATORS)	65	S	B	7,000	0.25	85	.850	.077	.041	0	.000	.000	.000	.000	.149	.149	0.00	0.00	0.00	0.80
H25 0.11	OVER 12,500 LBS THRU 40,000 LB	65	A	B	8,500	0.25	65	.650	.059	.031	0	.000	.000	.000	.000	.149	.149	0.00	0.00	0.00	0.70
H25 0.11	OVER 12,500 LBS THRU 40,000 LB	65	S	B	7,000	0.25	85	.850	.077	.041	0	.000	.000	.000	.000	.149	.149	0.00	0.00	0.00	0.85
H25 0.12	OVER 40,000 LBS THRU 100,0	65	A	B	12,000	0.25	65	.600	.059	.031	0	.000	.000	.000	.000	.149	.149	0.00	0.00	0.00	0.80
H25 0.12	OVER 40,000 LBS THR	65	S	B	10,000	0.25	85	.800	.077	.041	0	.000	.000	.000	.000	.149	.149	0.00	0.00	0.00	0.95
H25 0.13	OVER 100,000 L	65	A	B	16,000	0.25	65	.650	.059	.031	0	.000	.000	.000	.000	.047	.047	0.00	0.00	0.00	1.00
H25 0.13	OVER 1	65	S	B	13,500	0.25	85	.850	.077	.041	0	.000	.000	.000	.000	.047	.047	0.00	0.00	0.00	1.10
		65	A	B	15,000	0.25	65	.650	.059	.031	0	.000	.000	.000	.000	.051	.051	0.00	0.00	0.00	1.10
		65	S	B	15,000	0.25	85	.850	.077	.041	0	.000	.000	.000	.000	.051	.051	0.00	0.00	0.00	1.25
	ARS	95	A	B	6,000	0.15	65	.650	.059	.031	0	.000	.000	.000	.000	.136	.136	0.00	0.00	0.00	0.90
	ERIAL HANDLING	95	A	B	6,000	0.20	65	.650	.059	.031	0	.000	.000	.000	.000	.136	.136	0.00	0.00	0.00	0.80
	MENTS, CONCRETE PULVERIZERS	95	A	B	6,000	0.15	65	.650	.059	.031	0	.000	.000	.000	.000	.136	.136	0.00	0.00	0.00	1.00
H25 0.24	ATTACHMENTS, COMPACTORS	95	A	B	6,000	0.15	65	.650	.059	.031	0	.000	.000	.000	.000	.136	.136	0.00	0.00	0.00	1.00
H30 0.00	HYDRAULIC EXCAVATORS, WHEEL MOUNTED	1																			
H30 0.01	0 THRU 1.0 CY	65	A	B	8,000	0.25	60	.600	.054	.029	10	.100	.009	.005	.000	.149	.141	0.83	0.54	0.92	0.50
H30 0.01	0 THRU 1.0 CY	65	S	B	6,500	0.25	78	.780	.070	.037	13	.130	.012	.006	.000	.149	.141	0.25	0.15	0.28	0.55
H30 0.02	OVER 1.0 CY	65	A	B	10,000	0.25	60	.600	.054	.029	10	.100	.009	.005	.000	.149	.141	0.83	0.54	0.92	0.60
H30 0.02	OVER 1.0 CY	65	S	B	8,000	0.25	78	.780	.070	.037	13	.130	.012	.006	.000	.149	.141	0.25	0.15	0.28	0.65
H35 0.00	HYDRAULIC SHOVELS, CRAWLER MOUNTED	1																			

EK=Economic Key (Appendix E)
C=Operating Conditions (A=average, S=severe)
DC=Discount Code (B=basic 7.5%, S=special 15%)
RCF=Repair Cost Factor

LIFE=Economic Life
SLV=Salvage Value
HPF=Horsepower Factor

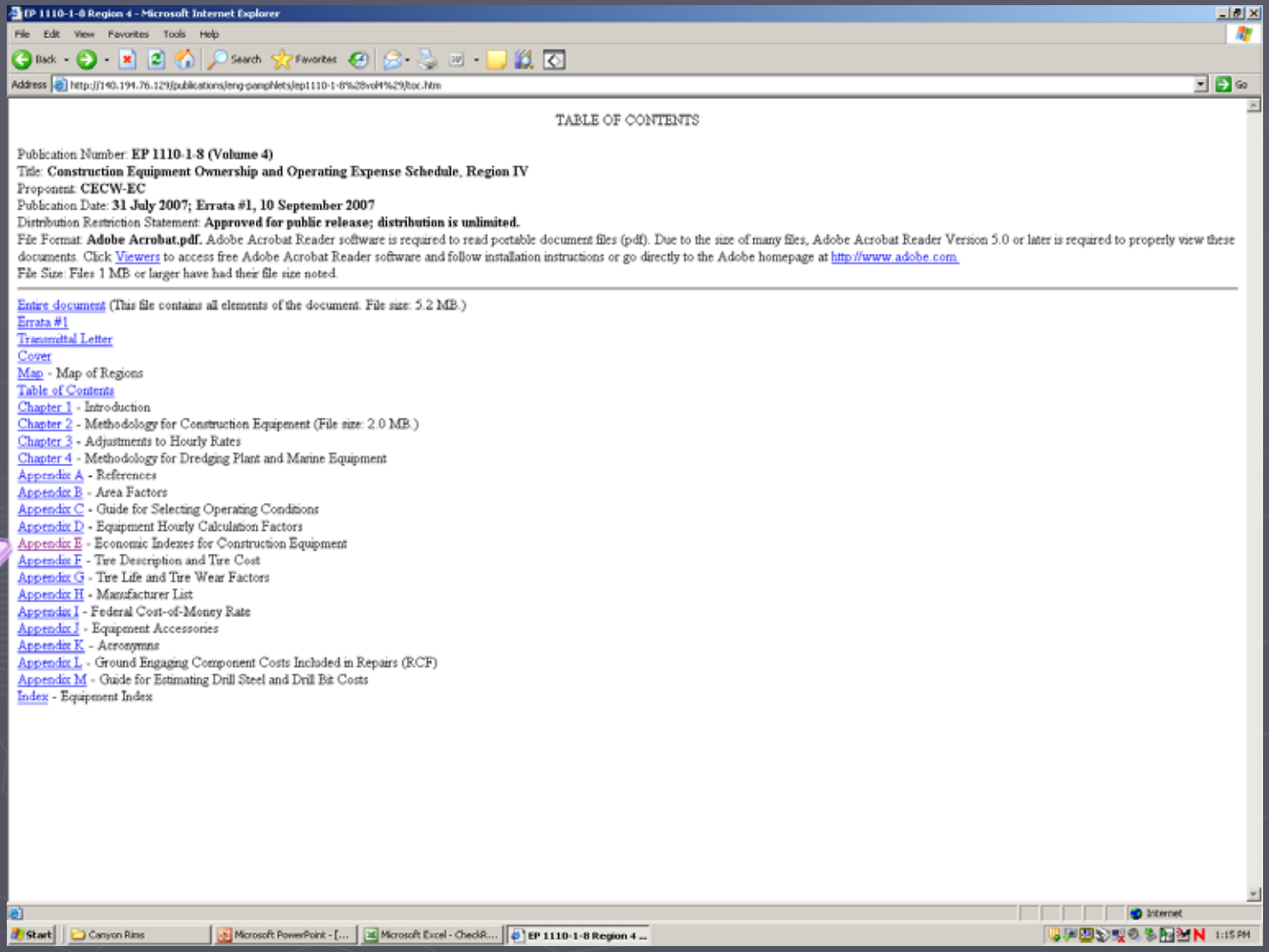
E=Electric Powered
G=Gas Powered
D=Diesel Powered

FT=Front Tire
DT=Drive Tire
TT=Trailing Tire

D-6

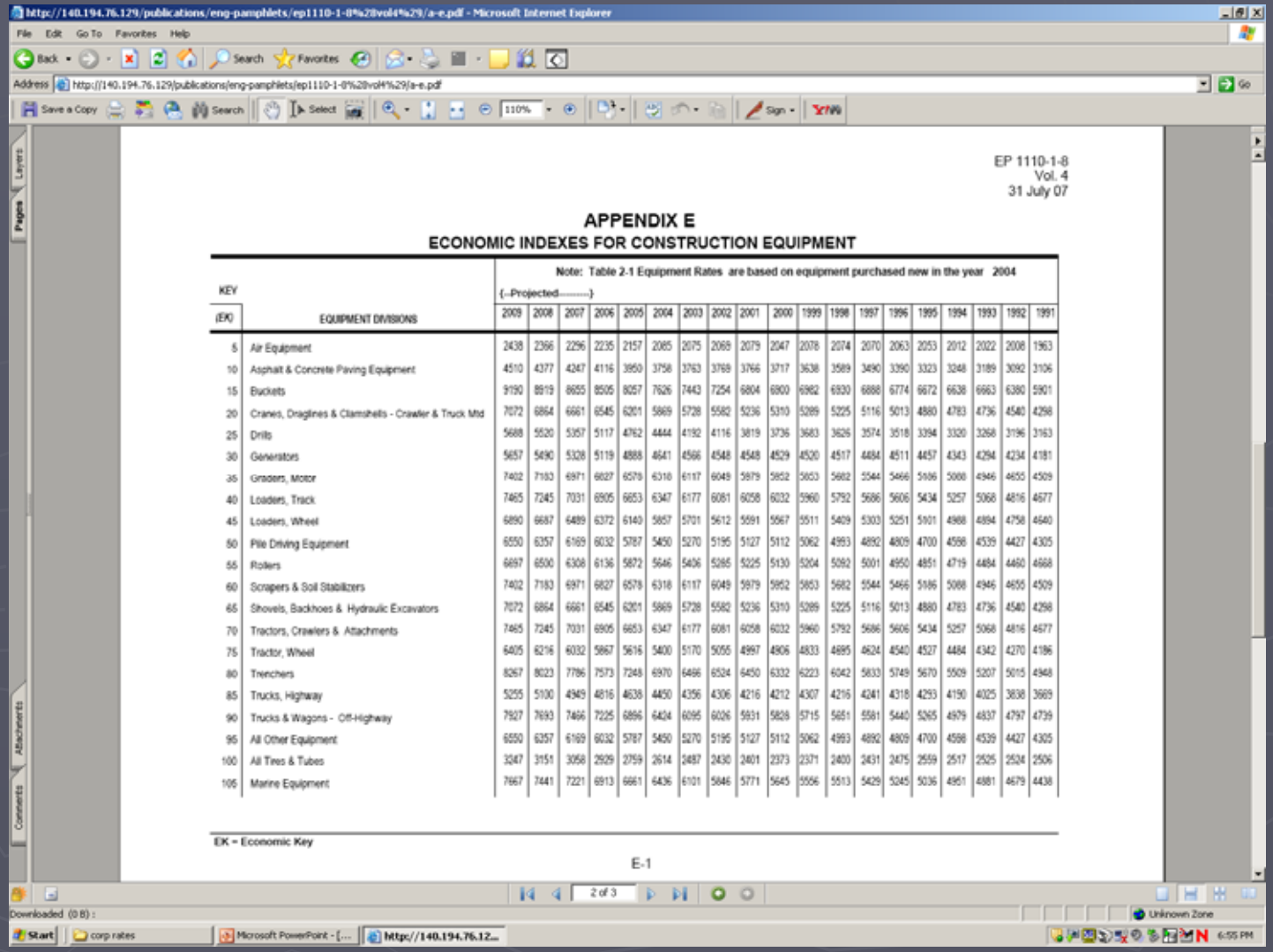
Severe Conditions, Changing Economic Climate, Older Equipment

Economic Indexes are found in Appendix E.



Severe Conditions, Changing Economic Climate, Older Equipment

Use the Economic Key (EK) that you looked up in Appendix D to find the factor for both the present year and the year of manufacture for the equipment.



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EP 1110-1-8
Vol. 4
31 July 07

APPENDIX E
ECONOMIC INDEXES FOR CONSTRUCTION EQUIPMENT

Note: Table 2-1 Equipment Rates are based on equipment purchased new in the year 2004

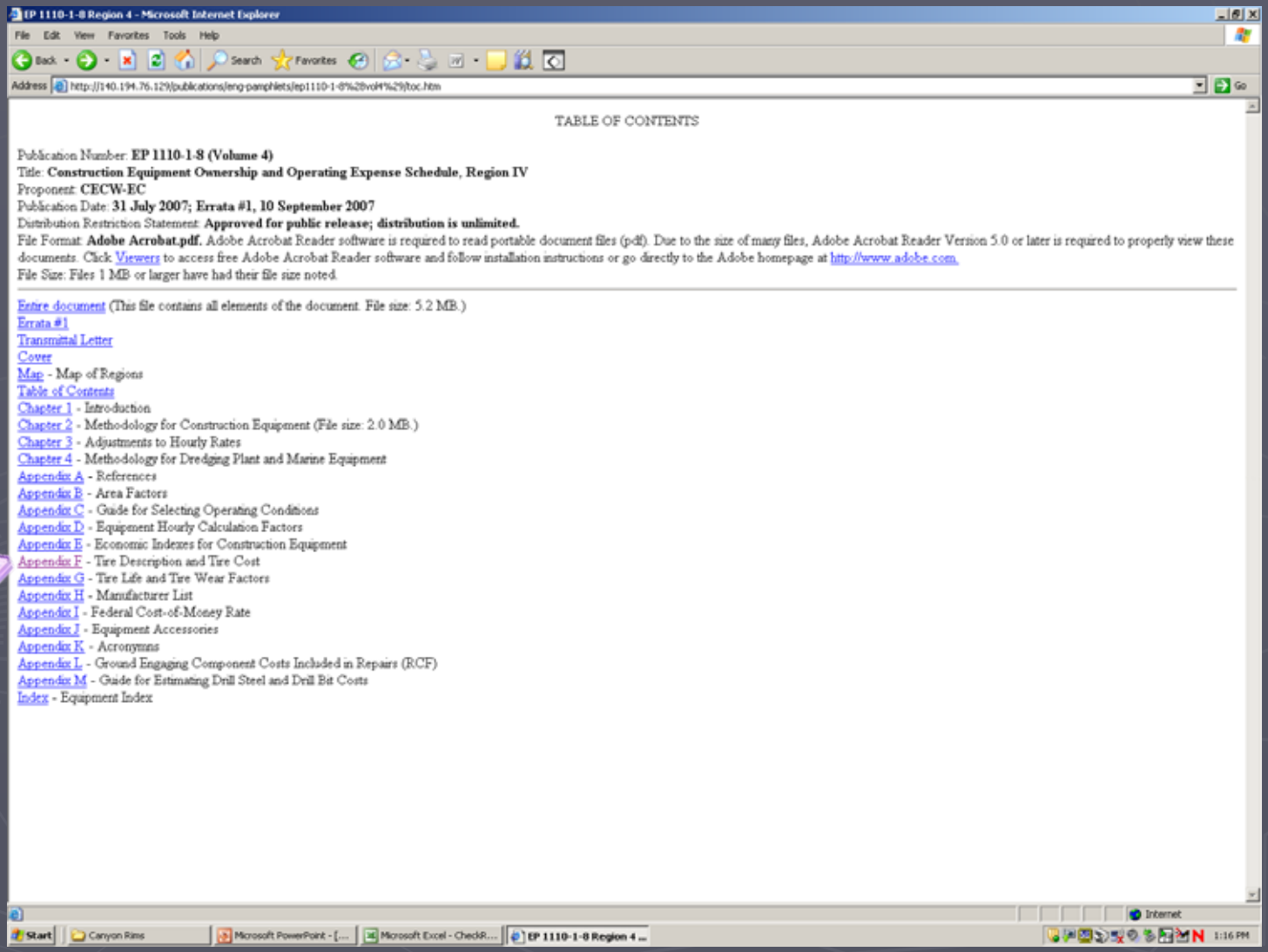
KEY (EK)	EQUIPMENT DIVISIONS	{--Projected--------} 2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991
5	Air Equipment	2438	2366	2296	2235	2157	2085	2075	2069	2079	2047	2078	2074	2070	2063	2053	2012	2022	2008	1963
10	Asphalt & Concrete Paving Equipment	4510	4377	4247	4116	3950	3758	3763	3769	3766	3717	3638	3589	3490	3390	3323	3248	3189	3092	3106
15	Buckets	9190	8919	8655	8505	8057	7626	7443	7254	6804	6800	6982	6930	6888	6774	6672	6638	6663	6380	5901
20	Cranes, Draglines & Clamshells - Crawler & Truck Mtd	7072	6864	6661	6545	6201	5869	5728	5582	5236	5310	5289	5225	5116	5013	4880	4783	4736	4540	4298
25	Drills	5688	5520	5357	5117	4762	4444	4192	4116	3819	3736	3683	3626	3574	3518	3394	3320	3268	3196	3163
30	Generators	5657	5490	5328	5119	4888	4641	4566	4548	4548	4529	4520	4517	4484	4511	4457	4343	4294	4234	4181
35	Graders, Motor	7402	7183	6971	6827	6579	6318	6117	6049	5979	5952	5853	5682	5544	5466	5186	5088	4946	4655	4509
40	Loaders, Track	7465	7245	7031	6905	6653	6347	6177	6081	6058	6032	5960	5792	5686	5606	5434	5257	5068	4816	4677
45	Loaders, Wheel	6890	6687	6489	6372	6140	5857	5701	5612	5591	5567	5511	5409	5303	5251	5101	4988	4894	4758	4640
50	Pile Driving Equipment	6550	6357	6169	6032	5787	5450	5270	5195	5127	5112	5062	4993	4892	4809	4700	4586	4539	4427	4305
55	Rollers	6697	6500	6308	6136	5872	5646	5406	5285	5225	5130	5204	5092	5001	4950	4851	4719	4484	4460	4668
60	Scrapers & Soil Stabilizers	7402	7183	6971	6827	6579	6318	6117	6049	5979	5952	5853	5682	5544	5466	5186	5088	4946	4655	4509
65	Shovels, Backhoes & Hydraulic Excavators	7072	6864	6661	6545	6201	5869	5728	5582	5236	5310	5289	5225	5116	5013	4880	4783	4736	4540	4298
70	Tractors, Crawlers & Attachments	7465	7245	7031	6905	6653	6347	6177	6081	6058	6032	5960	5792	5686	5606	5434	5257	5068	4816	4677
75	Tractor, Wheel	6405	6216	6032	5867	5616	5400	5170	5055	4997	4906	4833	4695	4624	4540	4527	4484	4342	4270	4186
80	Trenchers	8267	8023	7786	7573	7248	6970	6486	6524	6450	6332	6223	6042	5833	5749	5670	5509	5207	5015	4948
85	Trucks, Highway	5255	5100	4949	4816	4638	4450	4356	4306	4216	4212	4307	4216	4241	4318	4293	4190	4025	3838	3989
90	Trucks & Wagons - Off-Highway	7927	7693	7466	7225	6896	6424	6095	6026	5931	5828	5715	5651	5581	5440	5265	4979	4837	4797	4739
95	All Other Equipment	6550	6357	6169	6032	5787	5450	5270	5195	5127	5112	5062	4993	4892	4809	4700	4586	4539	4427	4305
100	All Tires & Tubes	3247	3151	3058	2929	2759	2614	2487	2430	2401	2373	2371	2400	2431	2475	2559	2517	2525	2524	2506
105	Marine Equipment	7667	7441	7221	6913	6661	6436	6101	5846	5771	5645	5556	5513	5429	5245	5036	4951	4881	4679	4438

EK = Economic Key

E-1

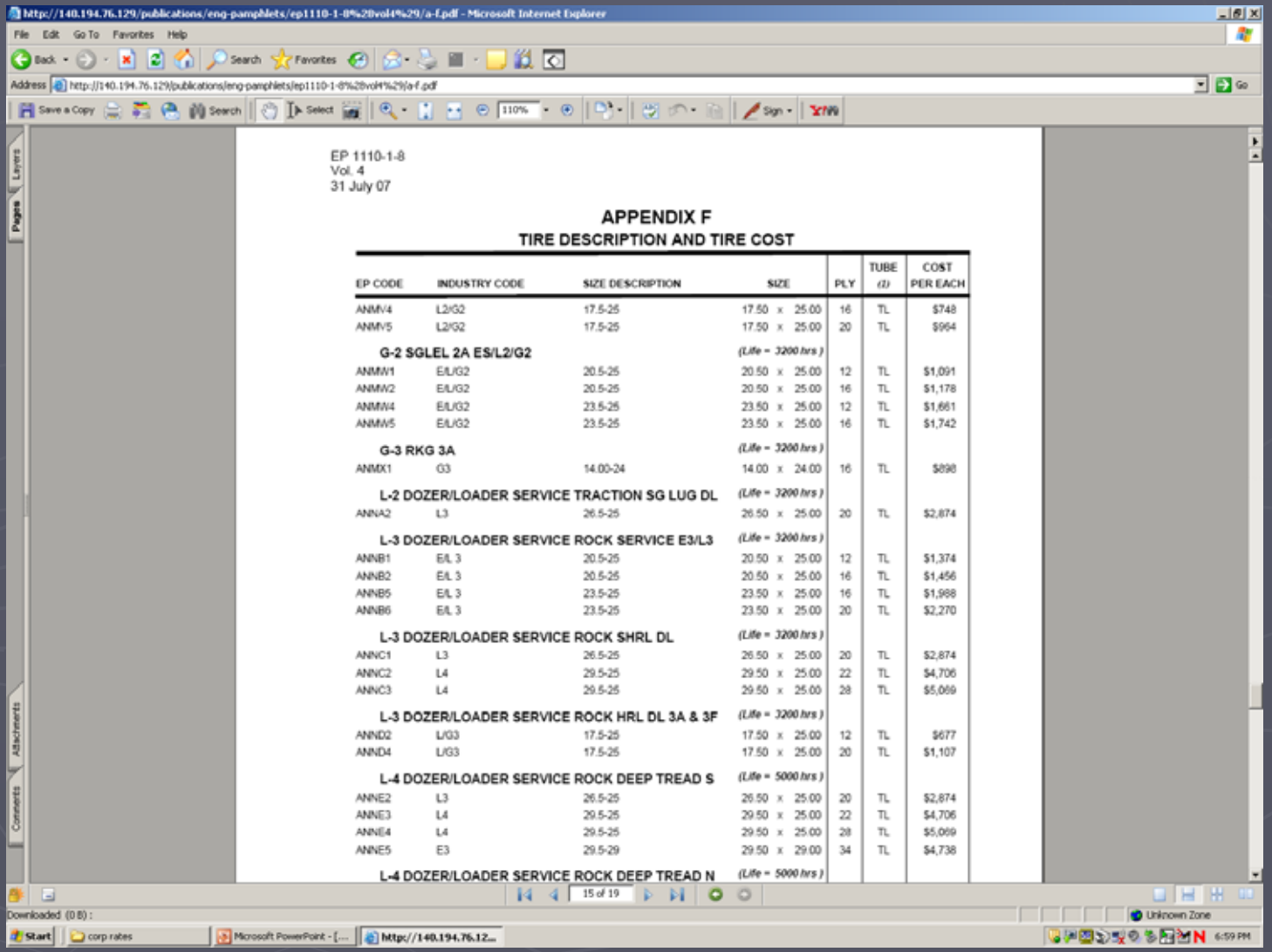
Severe Conditions, Changing Economic Climate, Older Equipment

Tire life and average tire costs are found in Appendix F.



Severe Conditions, Changing Economic Climate, Older Equipment

The table provides the tire life and the average cost per tire.



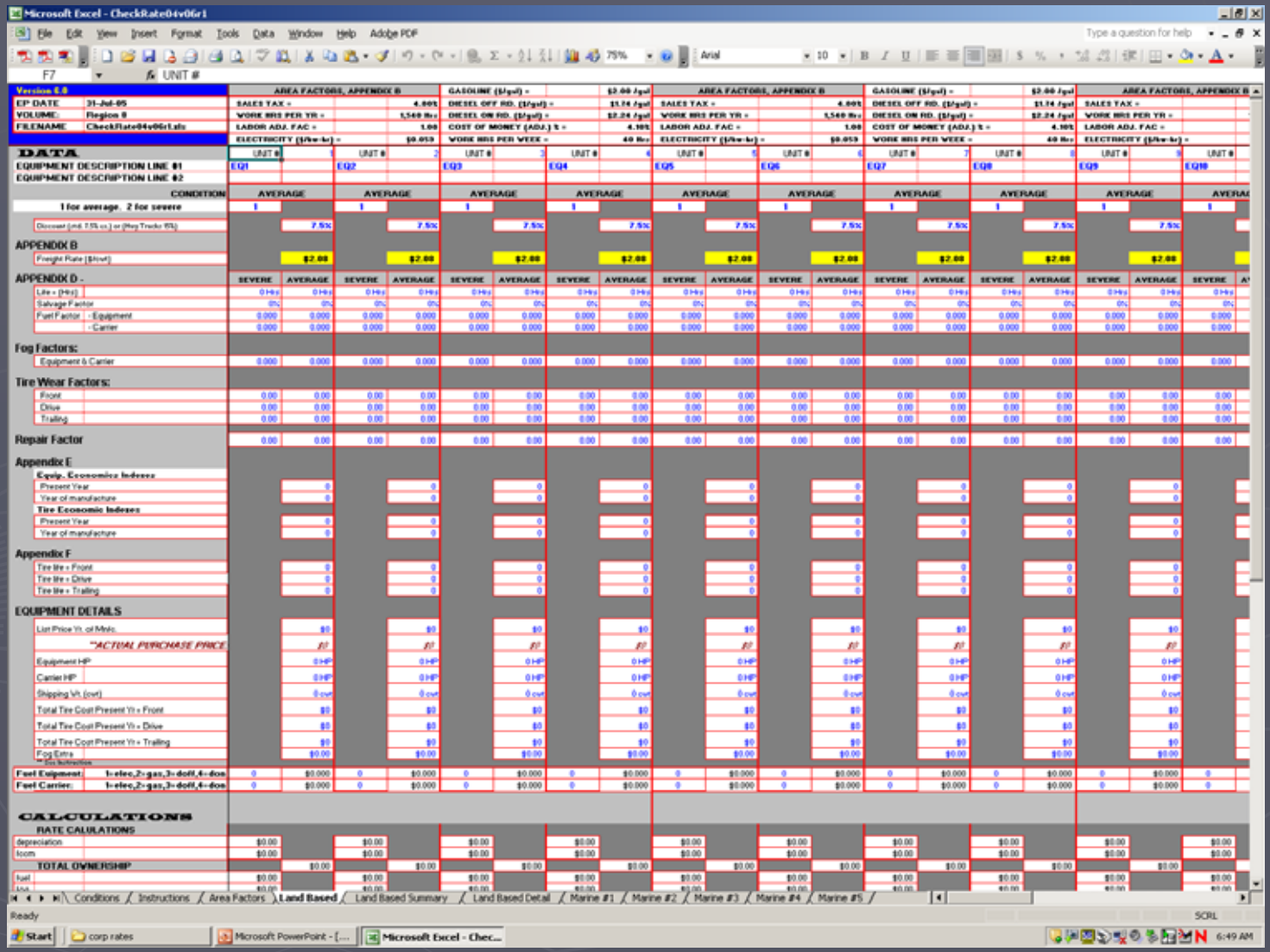
EP 1110-1-8
Vol. 4
31 July 07

APPENDIX F
TIRE DESCRIPTION AND TIRE COST

EP CODE	INDUSTRY CODE	SIZE DESCRIPTION	SIZE	PLY	TUBE (1)	COST PER EACH
ANMV4	L2/G2	17.5-25	17.50 x 25.00	16	TL	$748
ANMV5	L2/G2	17.5-25	17.50 x 25.00	20	TL	$964
G-2 SGLEL 2A ES/L2/G2			*(Life = 3200 hrs)*			
ANMW1	E/L/G2	20.5-25	20.50 x 25.00	12	TL	$1,091
ANMW2	E/L/G2	20.5-25	20.50 x 25.00	16	TL	$1,178
ANMW4	E/L/G2	23.5-25	23.50 x 25.00	12	TL	$1,661
ANMW5	E/L/G2	23.5-25	23.50 x 25.00	16	TL	$1,742
G-3 RKG 3A			*(Life = 3200 hrs)*			
ANMX1	G3	14.00-24	14.00 x 24.00	16	TL	$898
L-2 DOZER/LOADER SERVICE TRACTION SG LUG DL			*(Life = 3200 hrs)*			
ANNA2	L3	26.5-25	26.50 x 25.00	20	TL	$2,874
L-3 DOZER/LOADER SERVICE ROCK SERVICE E3/L3			*(Life = 3200 hrs)*			
ANNB1	E/L 3	20.5-25	20.50 x 25.00	12	TL	$1,374
ANNB2	E/L 3	20.5-25	20.50 x 25.00	16	TL	$1,456
ANNB5	E/L 3	23.5-25	23.50 x 25.00	16	TL	$1,988
ANNB6	E/L 3	23.5-25	23.50 x 25.00	20	TL	$2,270
L-3 DOZER/LOADER SERVICE ROCK SHRL DL			*(Life = 3200 hrs)*			
ANNC1	L3	26.5-25	26.50 x 25.00	20	TL	$2,874
ANNC2	L4	29.5-25	29.50 x 25.00	22	TL	$4,706
ANNC3	L4	29.5-25	29.50 x 25.00	28	TL	$5,069
L-3 DOZER/LOADER SERVICE ROCK HRL DL 3A & 3F			*(Life = 3200 hrs)*			
ANND2	L/G3	17.5-25	17.50 x 25.00	12	TL	$677
ANND4	L/G3	17.5-25	17.50 x 25.00	20	TL	$1,107
L-4 DOZER/LOADER SERVICE ROCK DEEP TREAD S			*(Life = 5000 hrs)*			
ANNE2	L3	26.5-25	26.50 x 25.00	20	TL	$2,874
ANNE3	L4	29.5-25	29.50 x 25.00	22	TL	$4,706
ANNE4	L4	29.5-25	29.50 x 25.00	28	TL	$5,069
ANNE5	E3	29.5-29	29.50 x 29.00	34	TL	$4,738
L-4 DOZER/LOADER SERVICE ROCK DEEP TREAD N			*(Life = 5000 hrs)*			

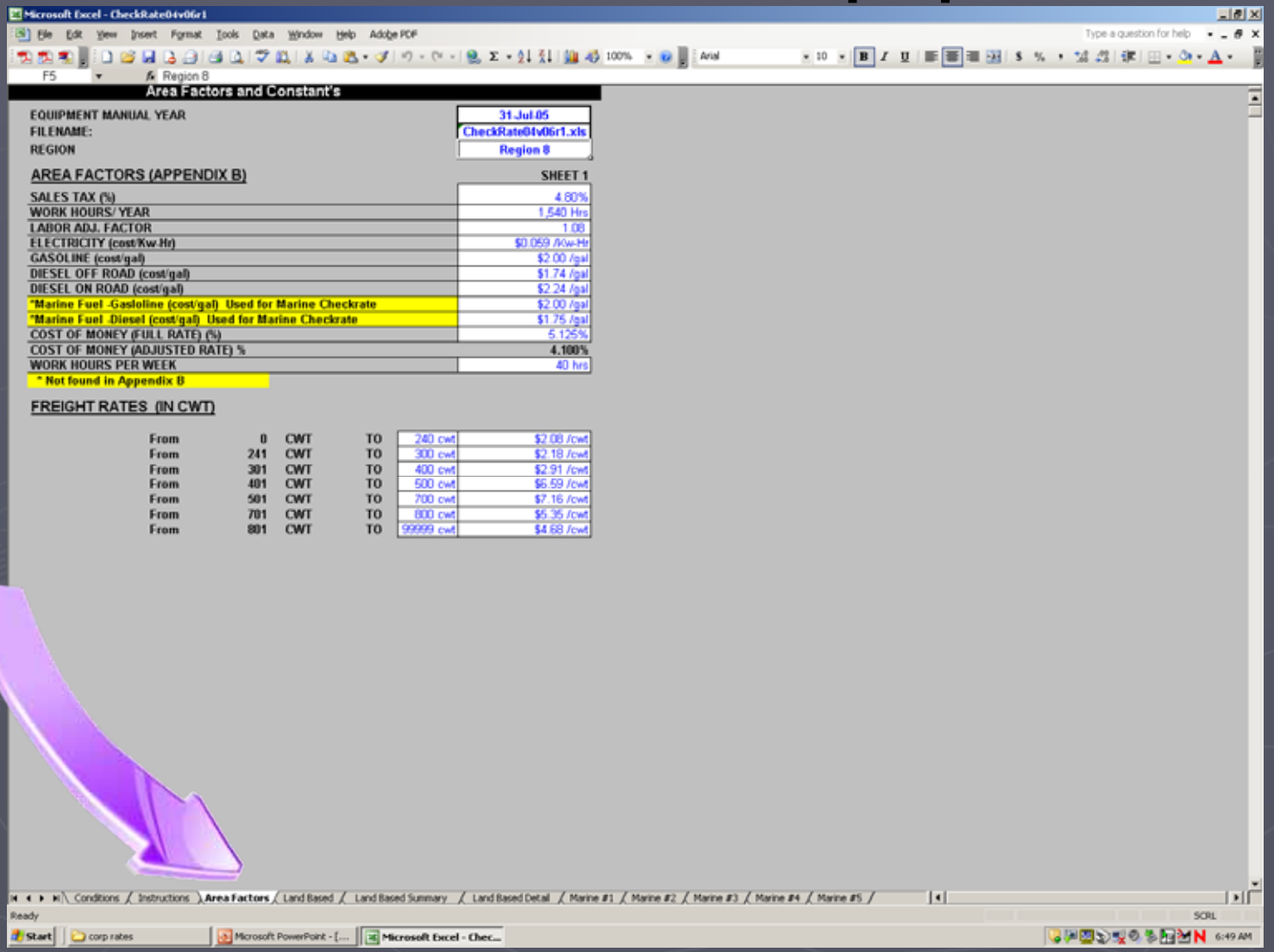
Severe Conditions, Changing Economic Climate, Older Equipment

Once all the equipment details are obtained and the factors have been found, it is time to enter the information into the Checkrate program.



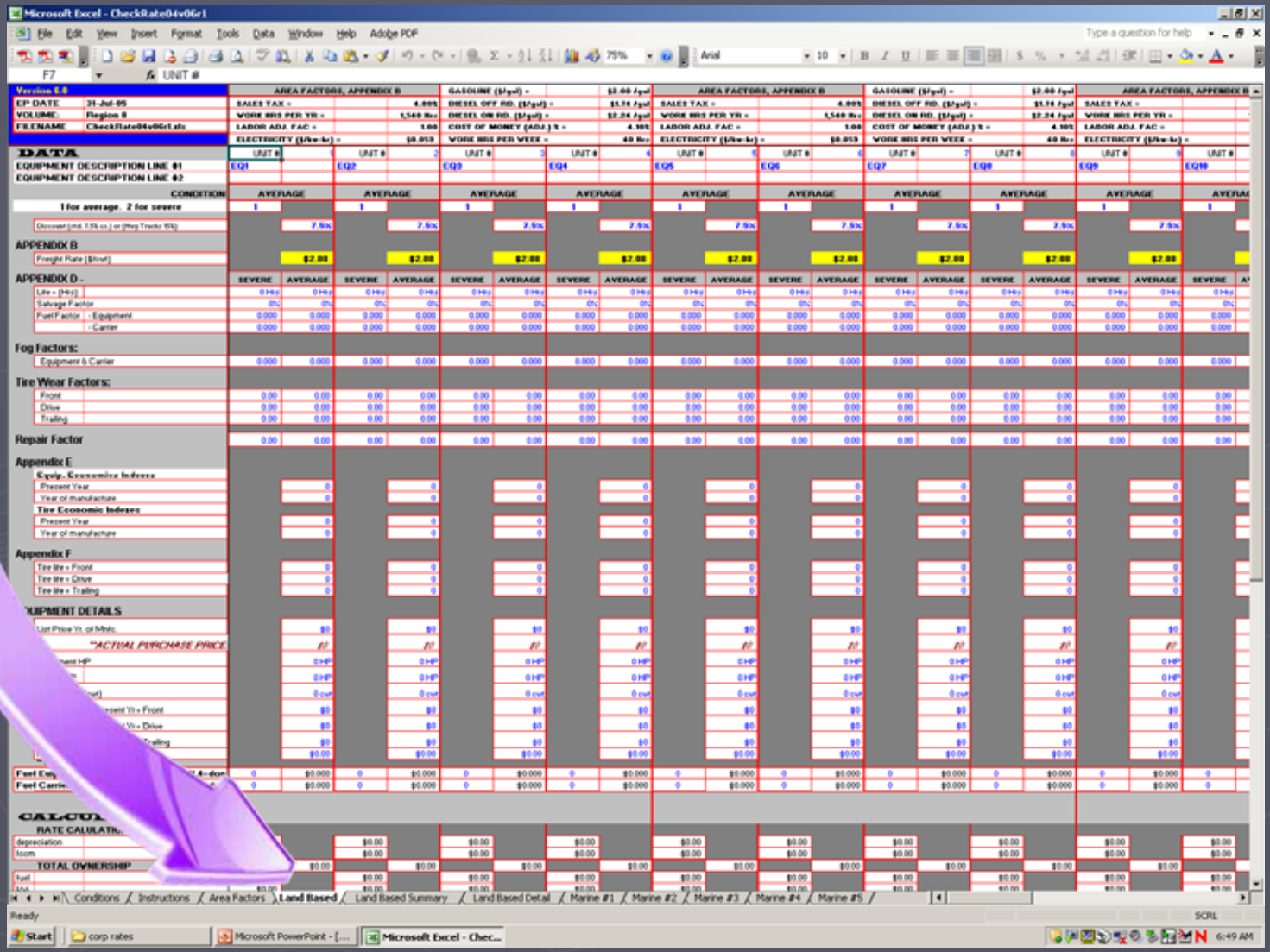
Severe Conditions, Changing Economic Climate, Older Equipment

All factors from Appendix B are entered in the appropriate places on the “Area Factor” tab.



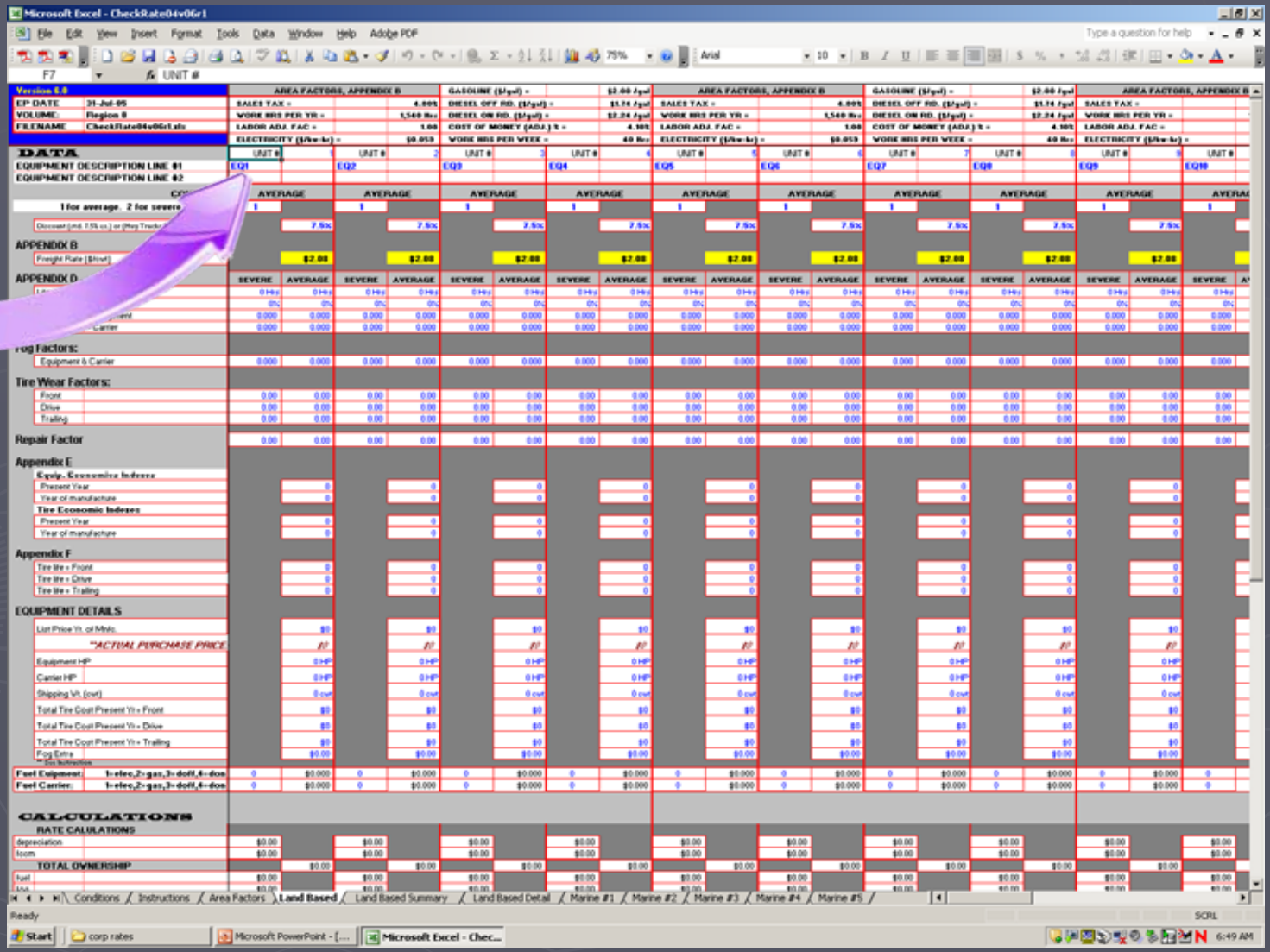
Severe Conditions, Changing Economic Climate, Older Equipment

All factors from Appendix D, E, and F are entered on the “Land Based” tab.



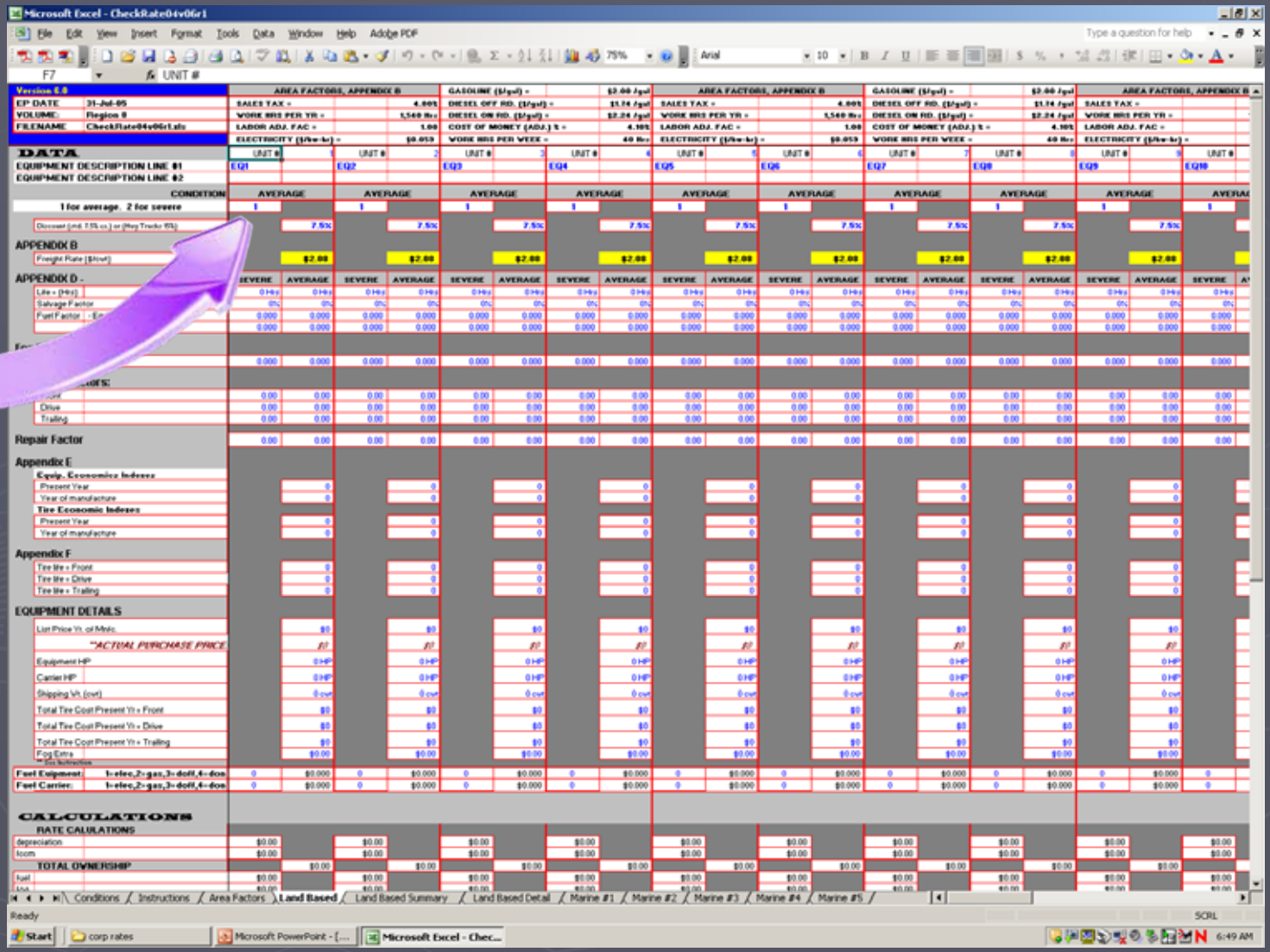
Severe Conditions, Changing Economic Climate, Older Equipment

Enter the Equipment description here.



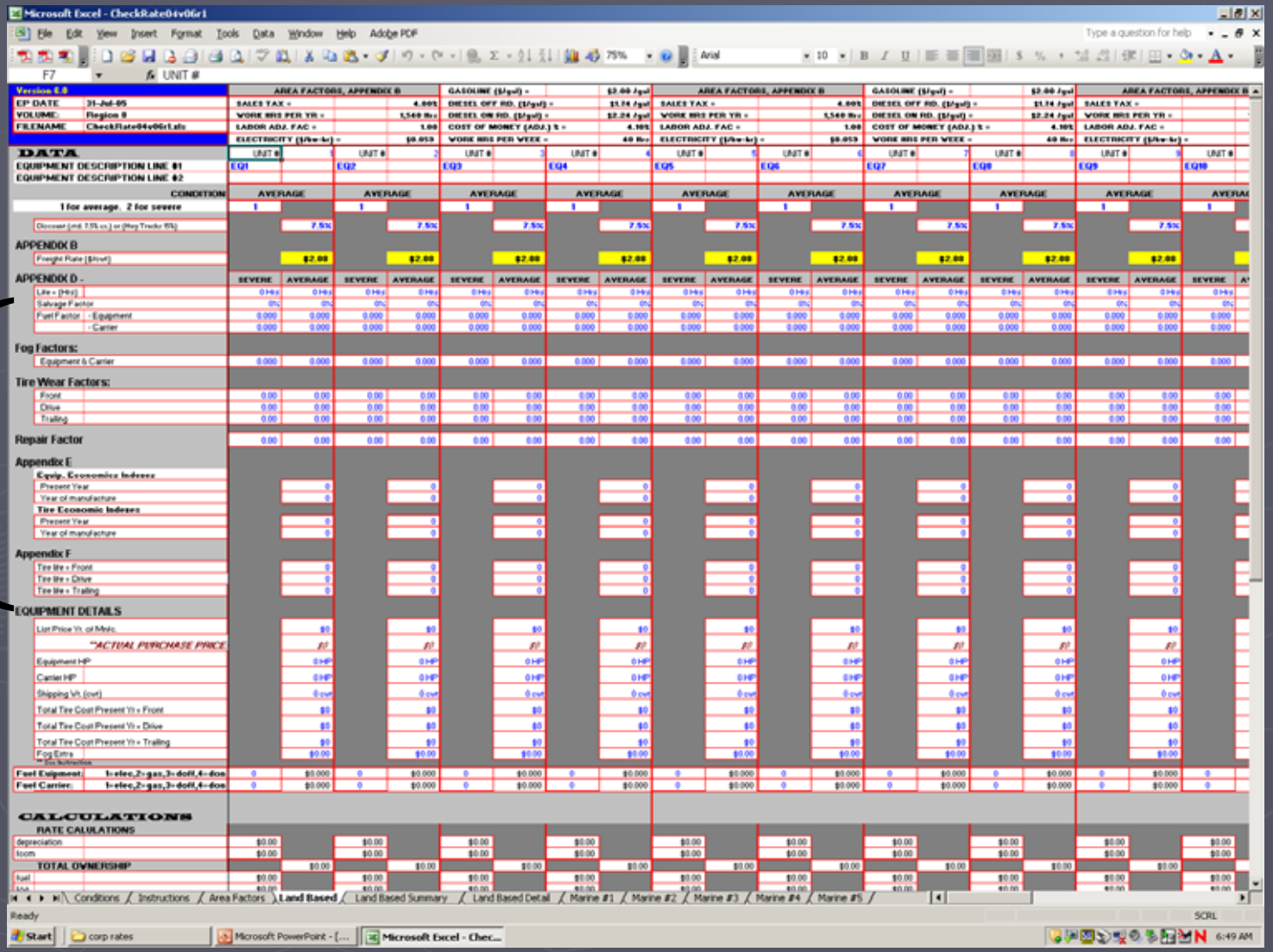
Severe Conditions, Changing Economic Climate, Older Equipment

Enter operating condition code from Appendix C in this box. Enter “1” for Average conditions and “2” for Severe conditions



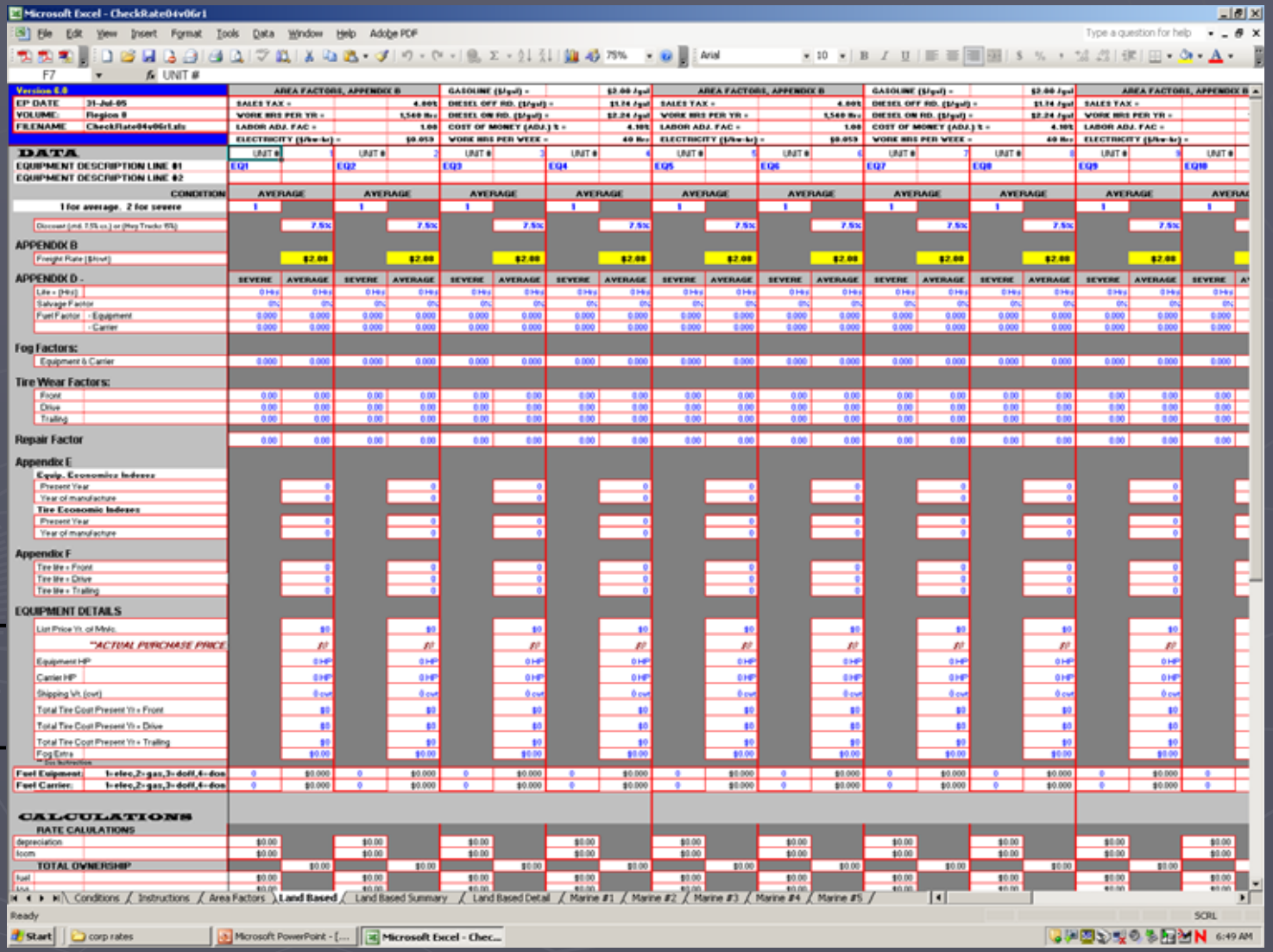
Severe Conditions, Changing Economic Climate, Older Equipment

Enter factors for Appendix D, E, and F in this section.



Severe Conditions, Changing Economic Climate, Older Equipment

Enter equipment details in this section.



Severe Conditions, Changing Economic Climate, Older Equipment

EQUIPMENT DETAILS			
List Price Yr. of Mnfc.			$80,000
****ACTUAL PURCHASE PRICE:**			*$75,000*
Equipment HP			320 HP
Carrier HP			0 HP
Shipping Wt. (cwt)			450 cwt
Total Tire Cost Present Yr = Front			$300
Total Tire Cost Present Yr = Drive			$300
Total Tire Cost Present Yr = Trailing			$300
Fog Extra			$0.00
** See Instruction			
Fuel Euipment:	**1=elec,2=gas,3=doff,4=don**	3	$1.740
Fuel Carrier:	**1=elec,2=gas,3=doff,4=don**	0	$0.000

If the equipment was purchased for less than the list price or was purchased used, be sure to list the actual purchase price.

Severe Conditions, Changing Economic Climate, Older Equipment

EQUIPMENT DETAILS			
List Price Yr. of Mnfc.			$80,000
****ACTUAL PURCHASE PRICE:**			*$75,000*
Equipment HP			320 HP
Carrier HP			0 HP
Shipping Wt. (cwt)			450 cwt
Total Tire Cost Present Yr = Front			$300
Total Tire Cost Present Yr = Drive			$300
Total Tire Cost Present Yr = Trailing			$300
Fog Extra			$0.00
** See Instruction			
Fuel Euipment:	**1=elec,2=gas,3=doff,4=don**	3	$1.740
Fuel Carrier:	**1=elec,2=gas,3=doff,4=don**	0	$0.000

HP refers to brake horsepower.

Severe Conditions, Changing Economic Climate, Older Equipment

EQUIPMENT DETAILS

List Price Yr. of Mnfc.			$80,000
***ACTUAL PURCHASE PRICE:*			*$75,000*
Equipment HP			320 HP
Carrier HP			0 HP
Shipping Wt. (cwt)			450 cwt
Total Tire Cost Present Yr = Front			$300
Total Tire Cost Present Yr = Drive			$300
Total Tire Cost Present Yr = Trailing			$300
Fog Extra			$0.00
** See Instruction			
Fuel Euipment:	**1=elec,2=gas,3=doff,4=don**	3	$1.740
Fuel Carrier:	**1=elec,2=gas,3=doff,4=don**	0	$0.000

Tire prices should reflect the total present day cost for all tires. If there are 4 drive tires at $100 each, the amount entered is $400.

Severe Conditions, Changing Economic Climate, Older Equipment

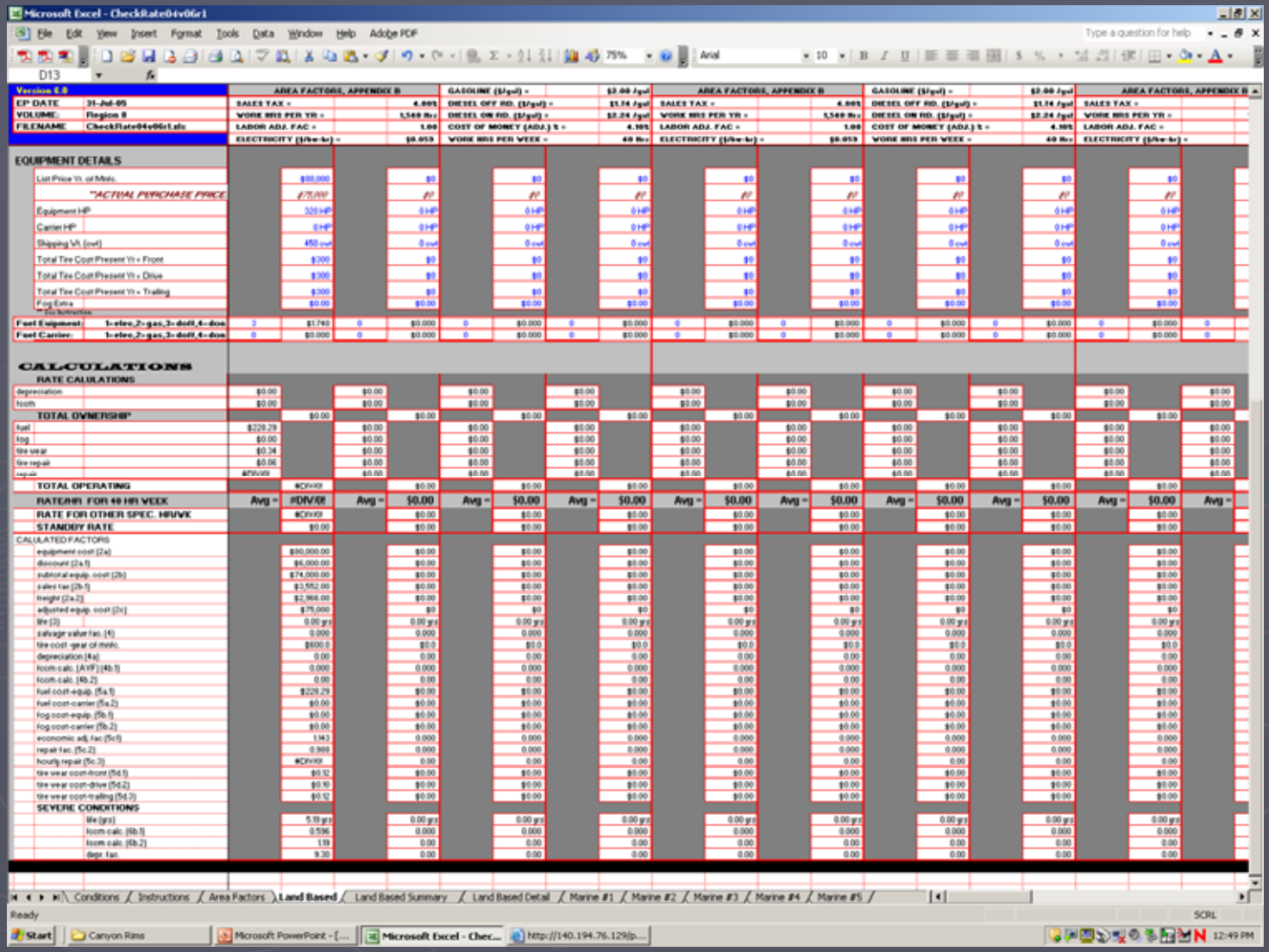
EQUIPMENT DETAILS

List Price Yr. of Mnfc.			$80,000
****ACTUAL PURCHASE PRICE:**			*$75,000*
Equipment HP			320 HP
Carrier HP			0 HP
Shipping Wt. (cwt)			450 cwt
Total Tire Cost Present Yr = Front			$300
Total Tire Cost Present Yr = Drive			$300
Total Tire Cost Present Yr = Trailing			
Fog Extra			
** See Instruction			
Fuel Euipment:	**1=elec,2=gas,3=doff,4=don**	3	$1.740
Fuel Carrier:	**1=elec,2=gas,3=doff,4=don**	0	$0.000

Make sure to specify the fuel type when filling out this section. The “doff” is off road diesel and “don” is on road diesel.

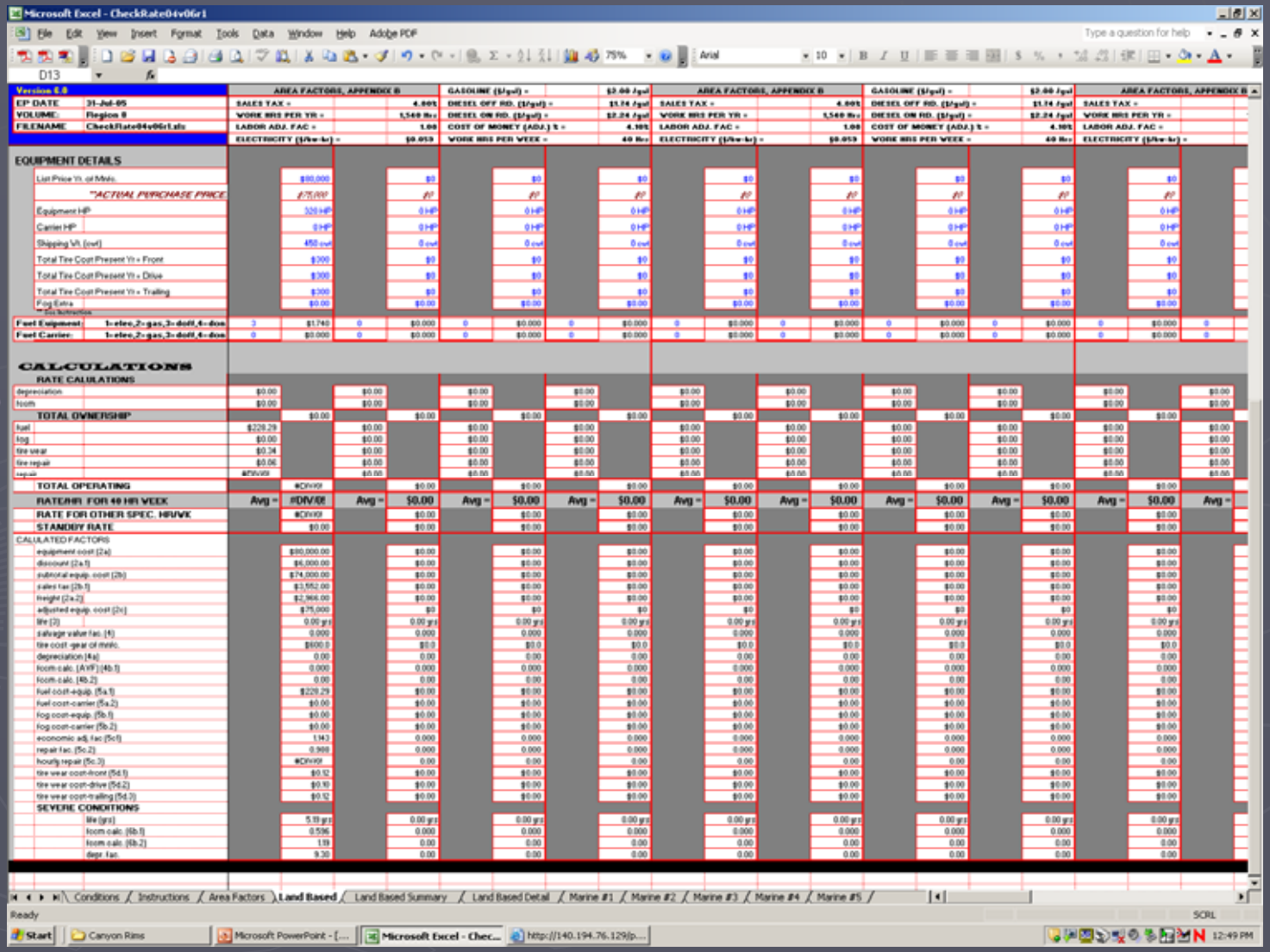
Severe Conditions, Changing Economic Climate, Older Equipment

Calculations are made automatically and appear in this section.



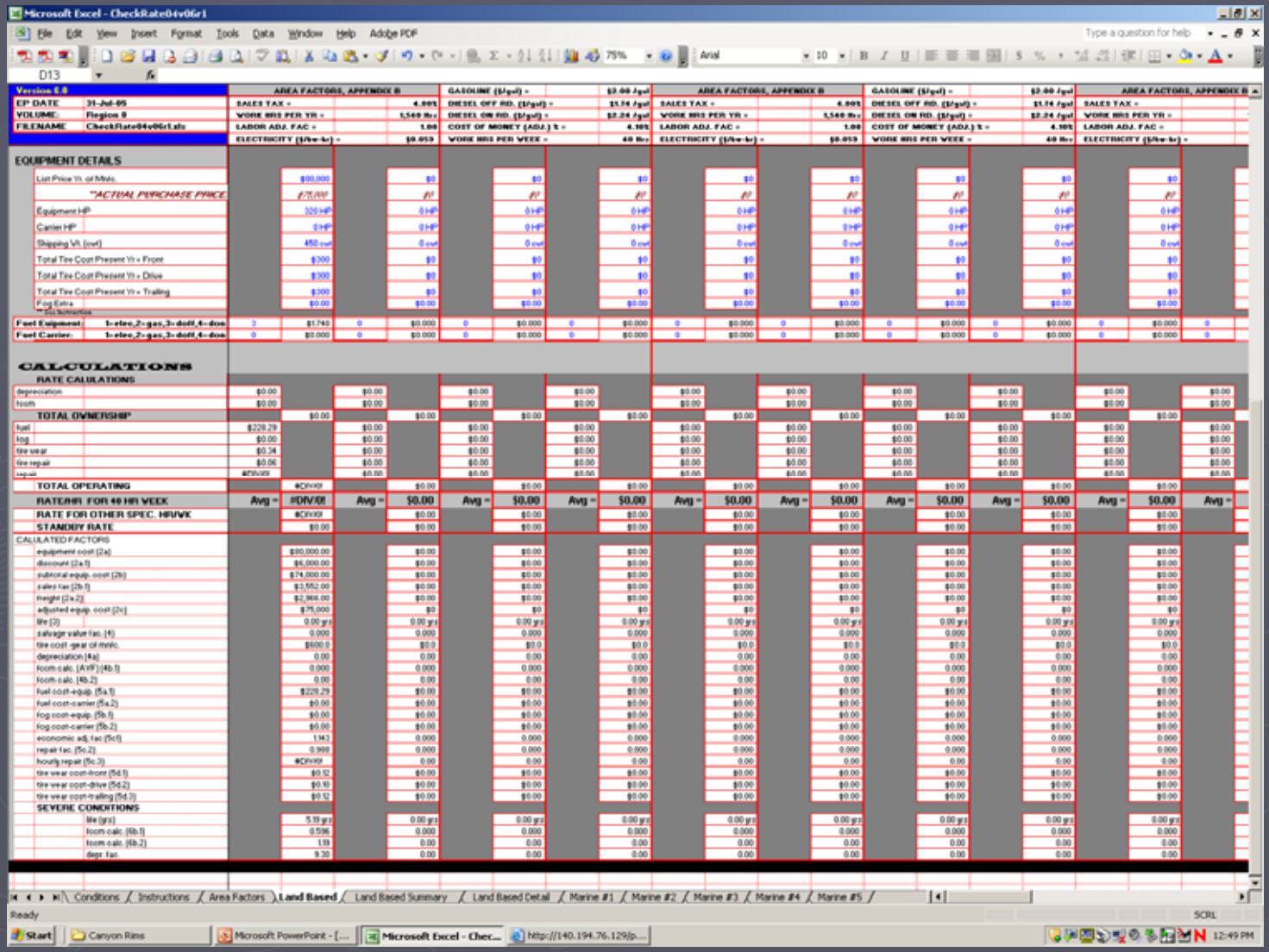
Severe Conditions, Changing Economic Climate, Older Equipment

Cost of ownership is found in this section.



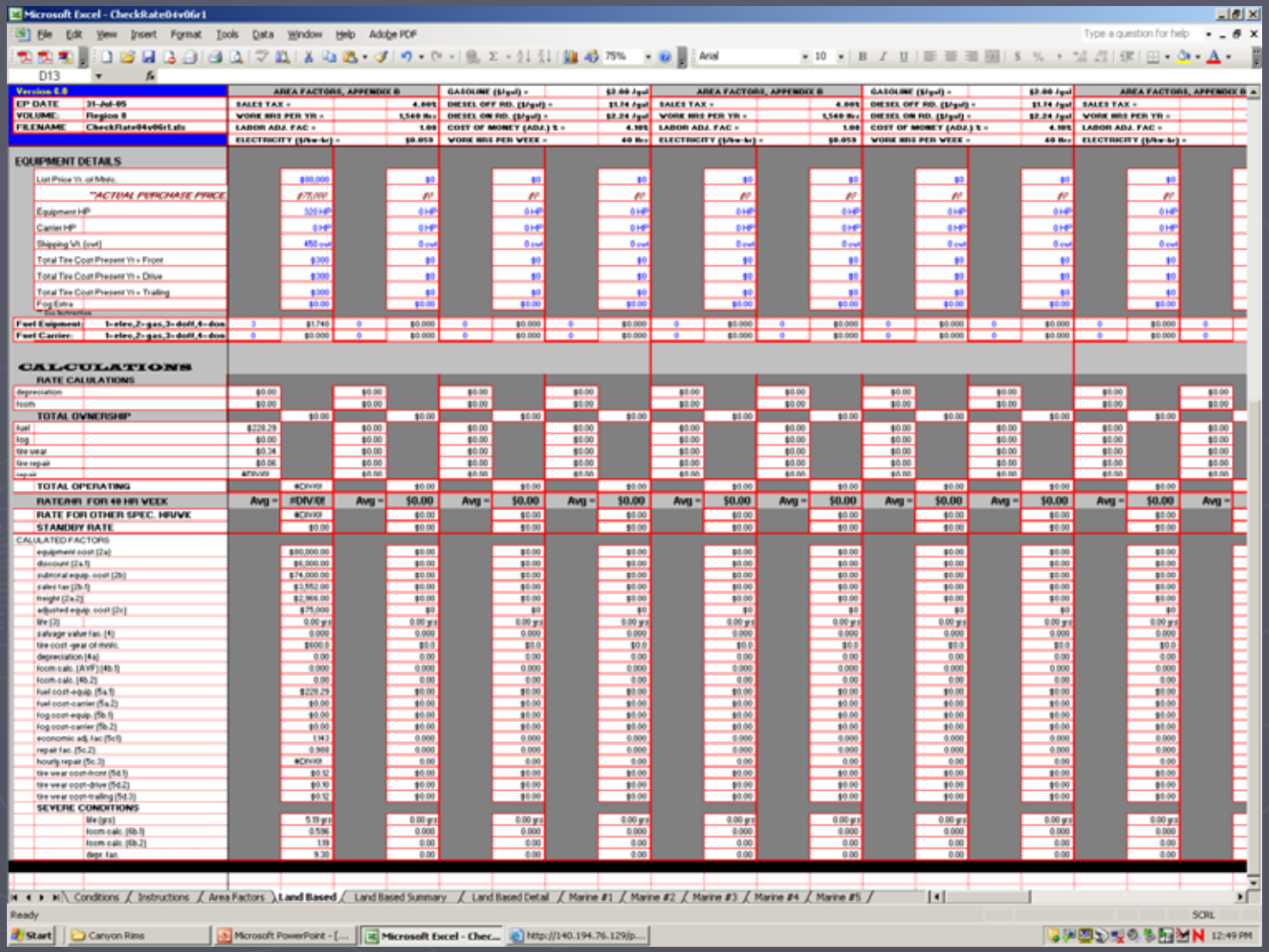
Severe Conditions, Changing Economic Climate, Older Equipment

Operating costs are found in this section.



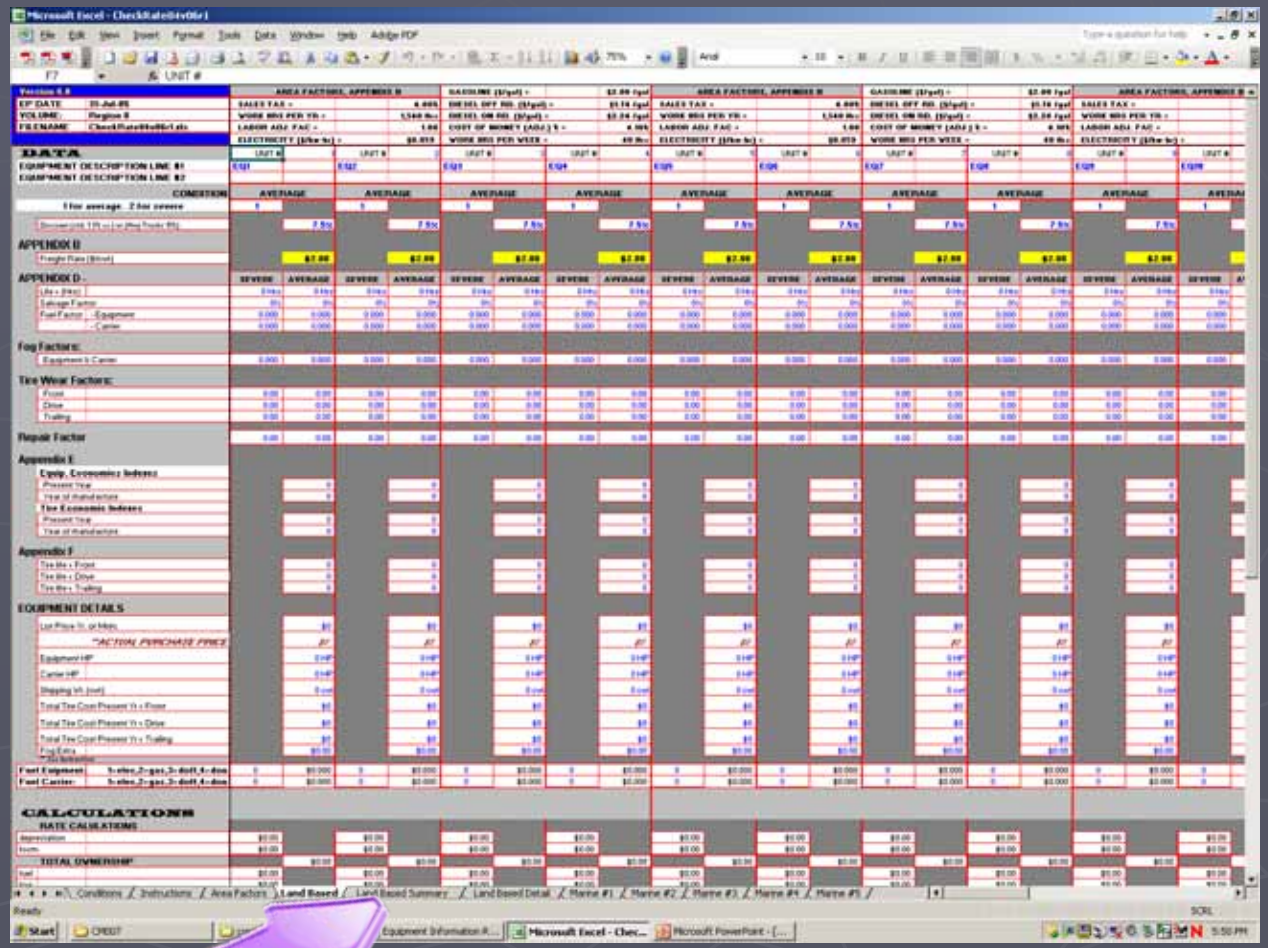
Severe Conditions, Changing Economic Climate, Older Equipment

Total hourly rates for working machines and stand-by rates are provided in this section.



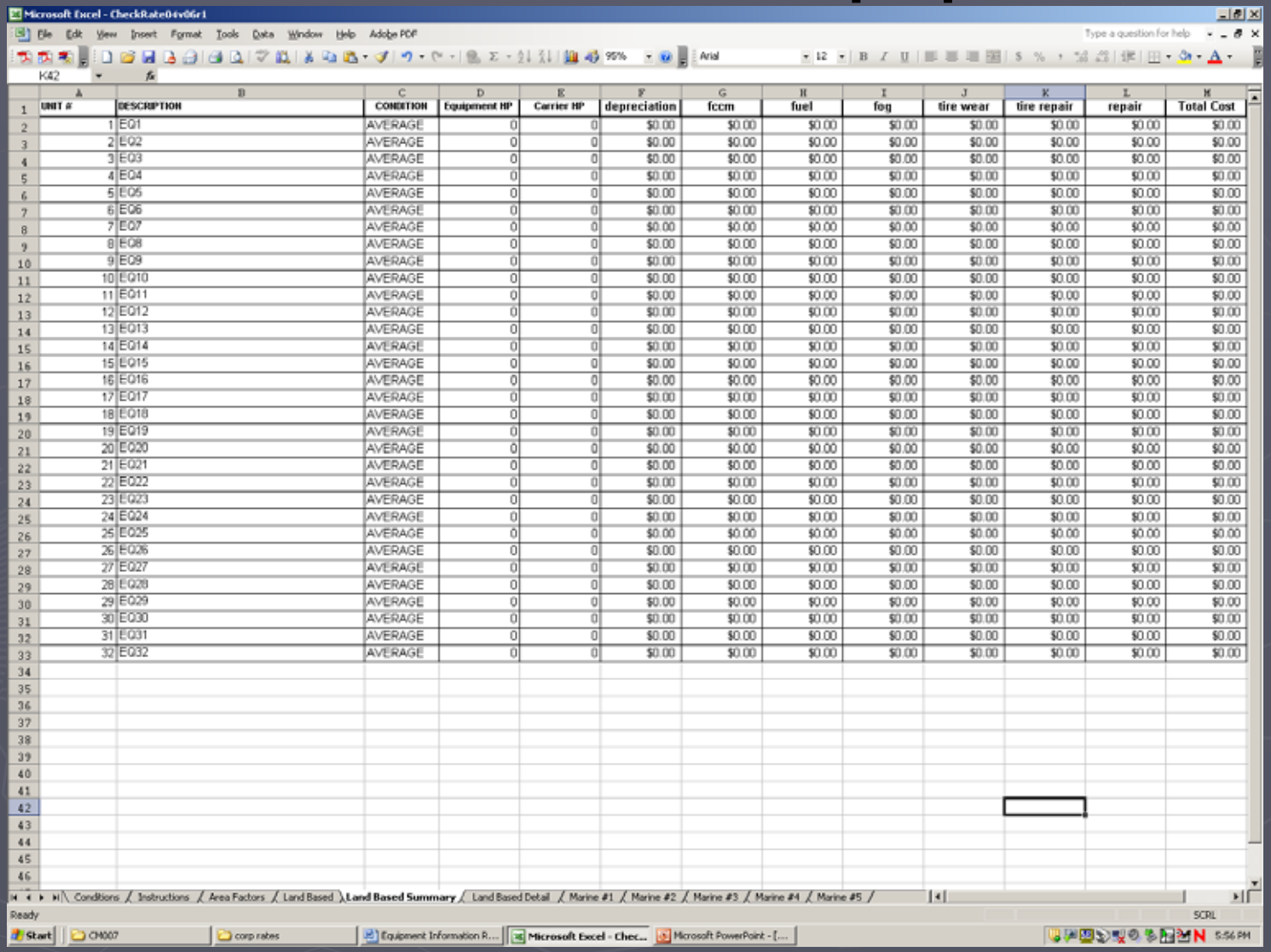
Severe Conditions, Changing Economic Climate, Older Equipment

The tab labeled "Land Based Summary" contains a summary sheet for equipment into the Checkrate program. This tab is not on the generic version that you download from the website.



Severe Conditions, Changing Economic Climate, Older Equipment

This summary sheet list each piece of equipment and all of the factors in a linear form.



Microsoft Excel - CheckRate04v06r1

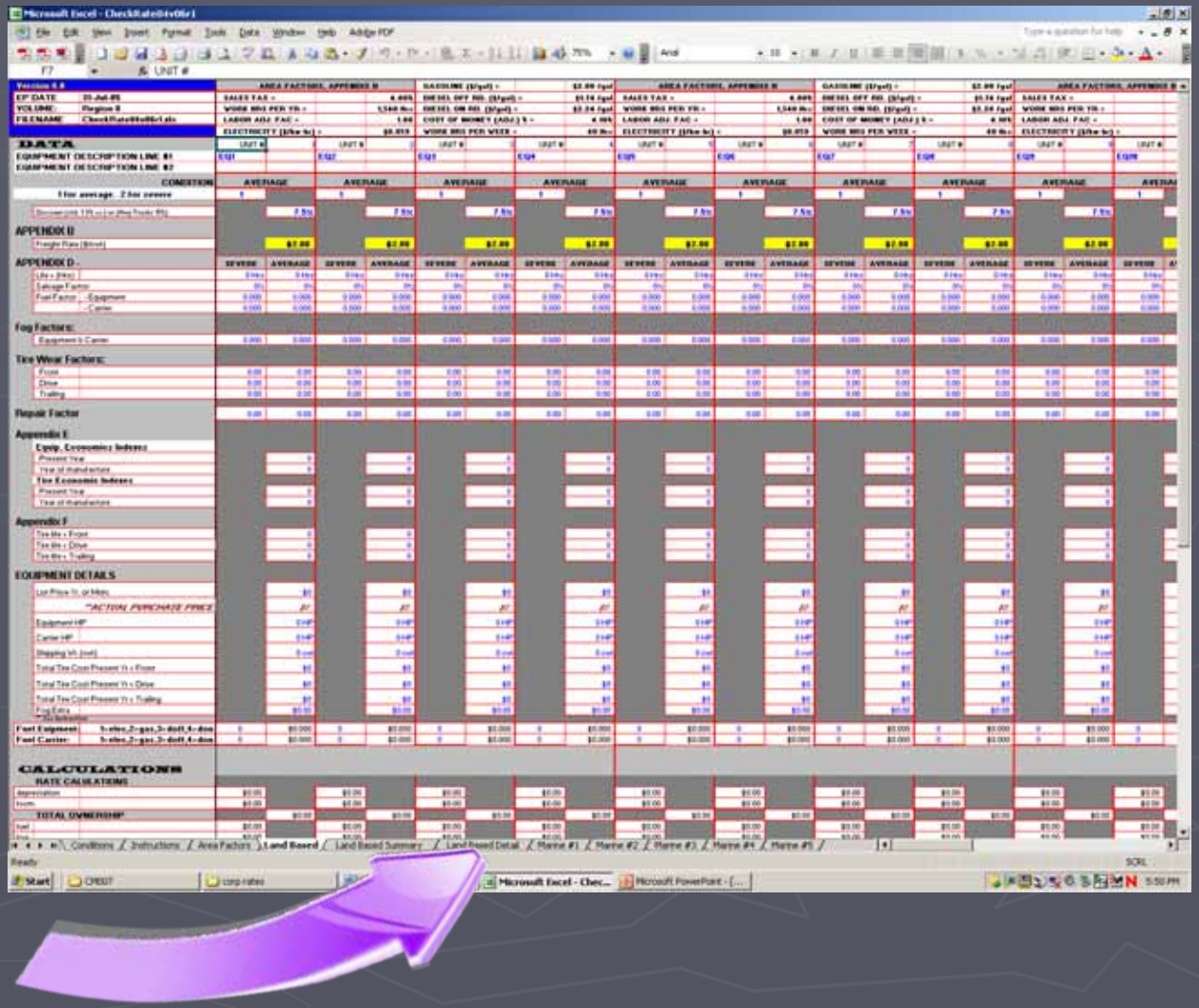
UNIT #	DESCRIPTION	CONDITION	Equipment HP	Carrier HP	depreciation	fccm	fuel	fog	tire wear	tire repair	repair	Total Cost
1	EQ1	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
2	EQ2	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
3	EQ3	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
4	EQ4	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
5	EQ5	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
6	EQ6	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
7	EQ7	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
8	EQ8	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
9	EQ9	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
10	EQ10	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
11	EQ11	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
12	EQ12	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
13	EQ13	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
14	EQ14	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
15	EQ15	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
16	EQ16	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
17	EQ17	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
18	EQ18	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
19	EQ19	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
20	EQ20	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
21	EQ21	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
22	EQ22	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
23	EQ23	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
24	EQ24	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
25	EQ25	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
26	EQ26	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
27	EQ27	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
28	EQ28	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
29	EQ29	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
30	EQ30	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
31	EQ31	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
32	EQ32	AVERAGE	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Conditions / Instructions / Area Factors / Land Based / Land Based Summary / Land Based Detail / Marine #1 / Marine #2 / Marine #3 / Marine #4 / Marine #5 /

Ready

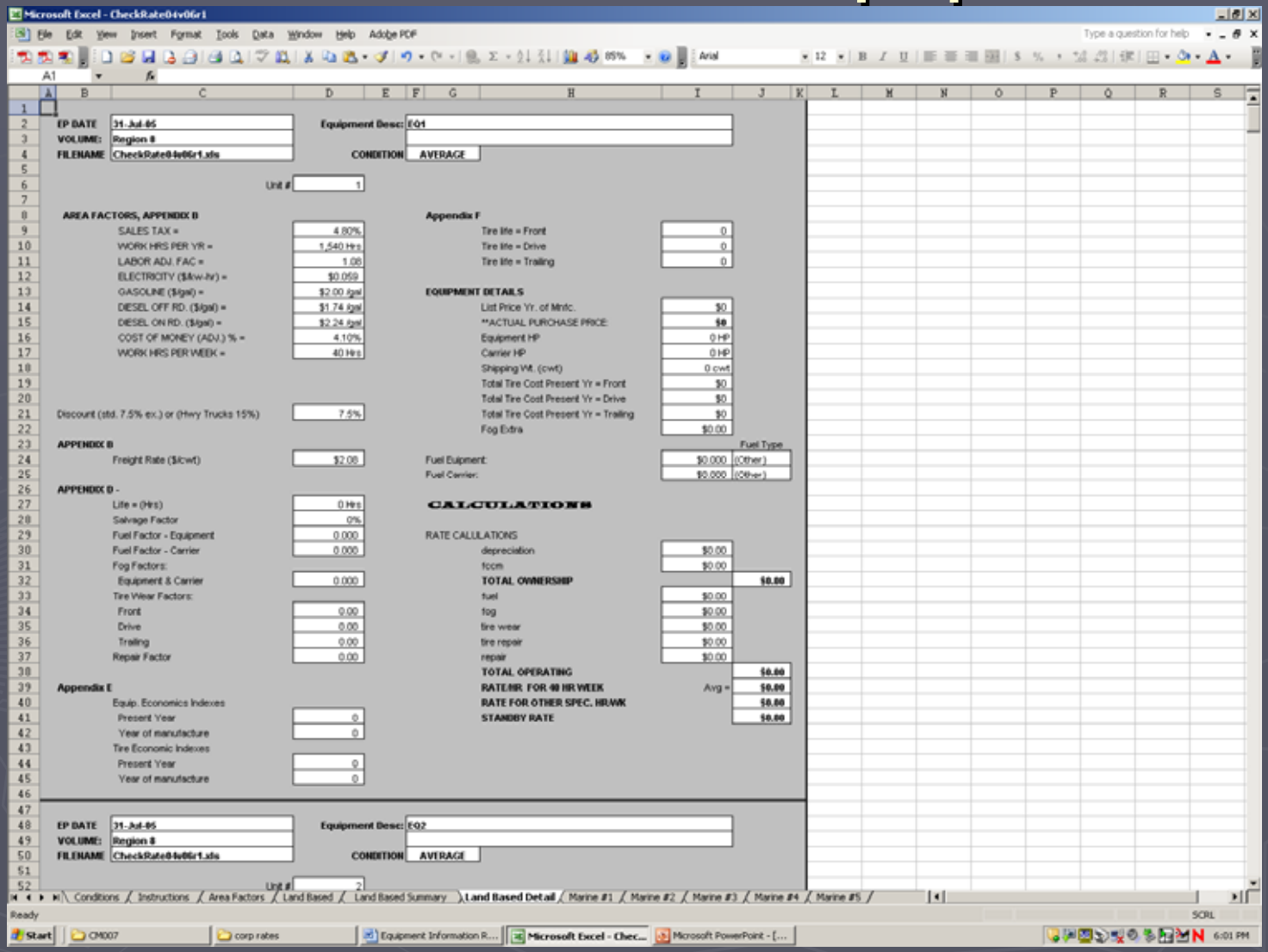
Severe Conditions, Changing Economic Climate, Older Equipment

The tab labeled “Land Based Detail” contains a series of summary sheets for equipment into the Checkrate program. This tab is also not on the generic version that you download from the website.



Severe Conditions, Changing Economic Climate, Older Equipment

This tab list each piece of equipment and its factors on their own page.



Severe Conditions, Changing Economic Climate, Older Equipment

The IGE hourly rate for equipment =

ACOE Checkrate hourly rate
+ Average hourly labor rate
+ Profit
+ Overhead
+ Bond
+ Verifiable miscellaneous expenses

Leased Equipment

Information needed to determine hourly rates for Leased Equipment include:

- Monthly lease price
- Number of hours per month in lease
- Is the contractor responsible for FOG
- Is the contractor responsible for equipment repairs
- Is the contractor responsible for tire repairs

Leased Equipment

If hours are not specified in the lease agreement, divide lease amount by 176 to determine hourly rate. If hours are specified in lease, divide monthly rate by the specified hours to determine hourly rate.

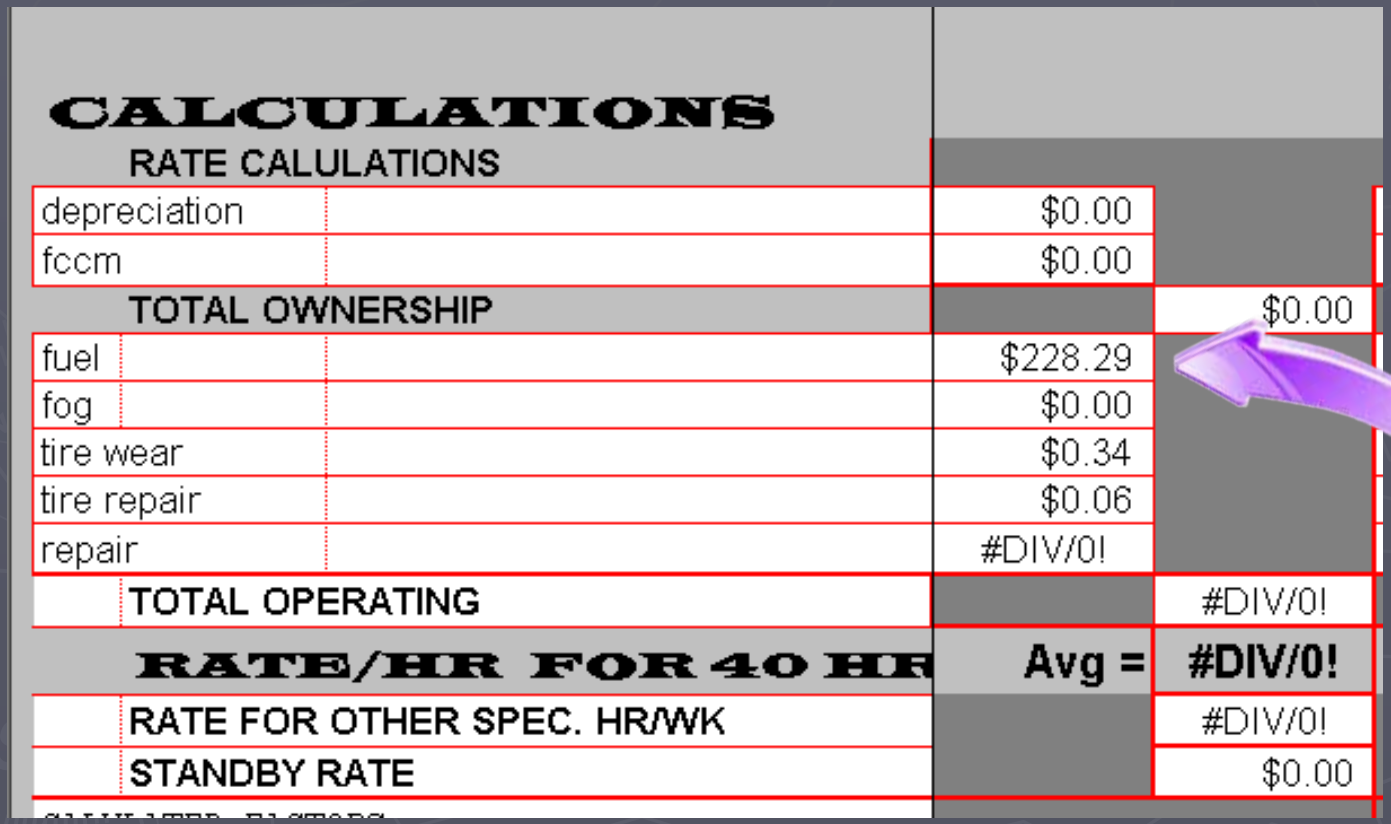
Use the ACOE Checkrate Program to determine the remaining operating costs.

Leased Equipment

CALCULATIONS		
RATE CALULATIONS		
depreciation	$0.00	
fccm	$0.00	
TOTAL OWNERSHIP		$0.00
fuel	$228.29	
fog	$0.00	
tire wear	$0.34	
tire repair	$0.06	
repair	#DIV/0!	
TOTAL OPERATING		#DIV/0!
RATE/HR FOR 40 HR	Avg =	#DIV/0!
RATE FOR OTHER SPEC. HR/WK		#DIV/0!
STANDBY RATE		$0.00

The “Ownership” cost is the calculated hourly lease rate.

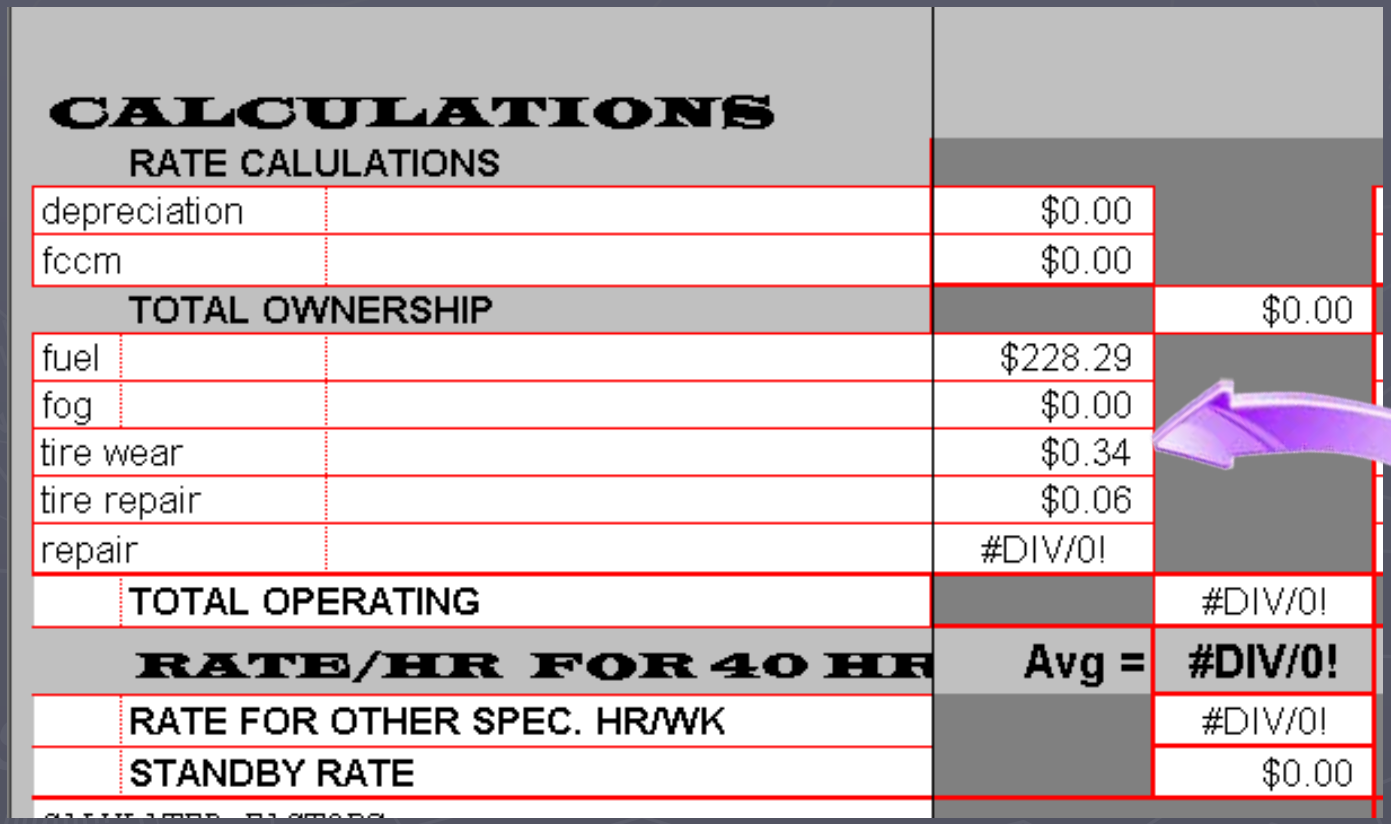
Leased Equipment



CALCULATIONS		
RATE CALULATIONS		
depreciation	$0.00	
fccm	$0.00	
TOTAL OWNERSHIP		$0.00
fuel	$228.29	
fog	$0.00	
tire wear	$0.34	
tire repair	$0.06	
repair	#DIV/0!	
TOTAL OPERATING		#DIV/0!
RATE/HR FOR 40 HR	Avg =	#DIV/0!
RATE FOR OTHER SPEC. HR/WK		#DIV/0!
STANDBY RATE		$0.00

The fuel cost always counts as an operating cost.

Leased Equipment



CALCULATIONS		
RATE CALULATIONS		
depreciation	$0.00	
fccm	$0.00	
TOTAL OWNERSHIP		$0.00
fuel	$228.29	
fog	$0.00	
tire wear	$0.34	
tire repair	$0.06	
repair	#DIV/0!	
TOTAL OPERATING		#DIV/0!
RATE/HR FOR 40 HR	Avg =	#DIV/0!
RATE FOR OTHER SPEC. HR/WK		#DIV/0!
STANDBY RATE		$0.00

The FOG, tire wear, tire repair, and repair cost only count as operating costs if the contractor is responsible for these costs in the lease.

Leased Equipment

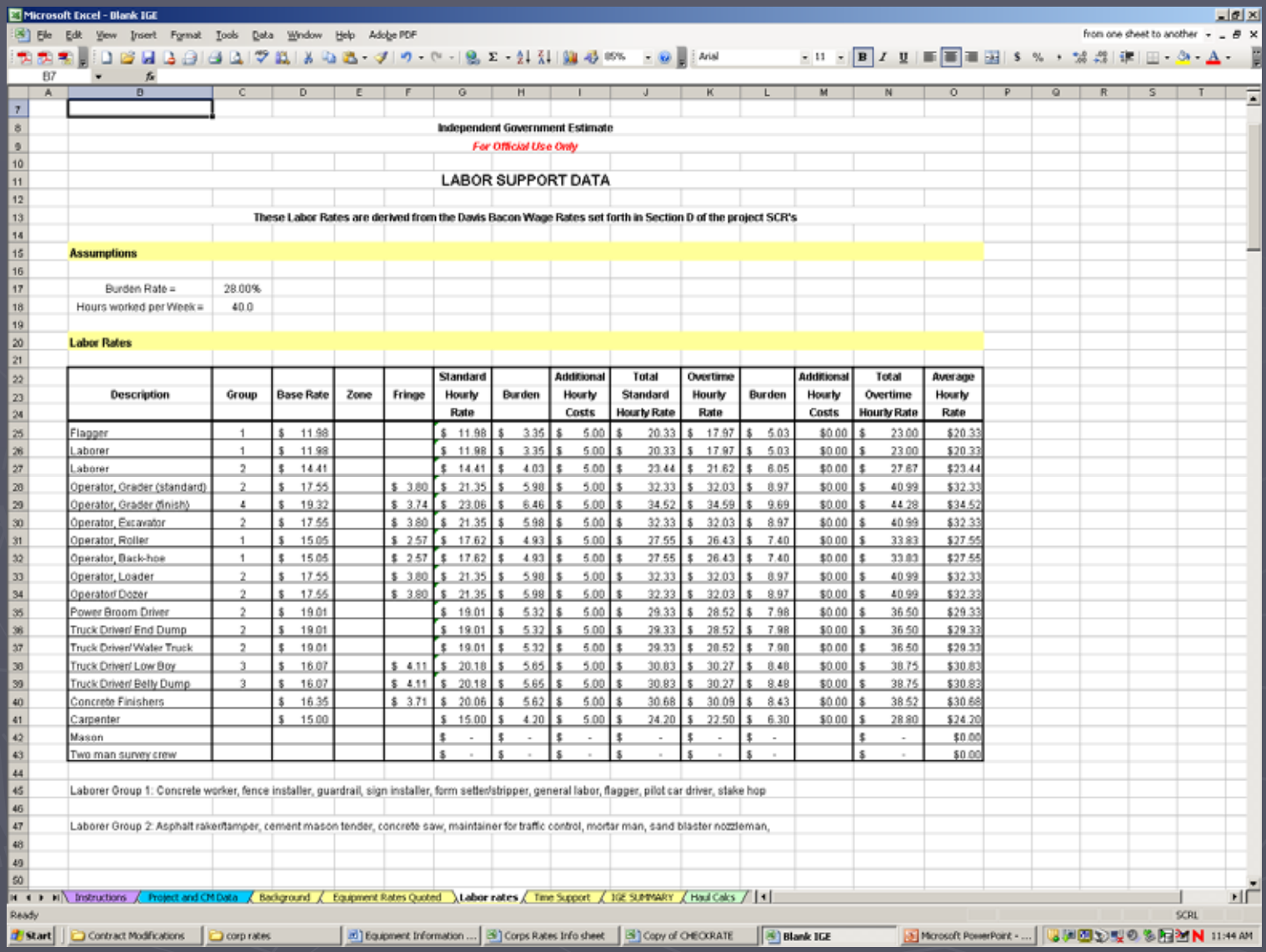
The IGE hourly rate for equipment =

Hourly lease rate
+ Allowable operating costs
+ Average hourly labor rate
+ Profit
+ Overhead
+ Bond
+ Verifiable miscellaneous expenses

Leased Equipment

Standby rates for leased equipment should be discussed with your COE. There is no easy way to calculate a standby rate for leased equipment using the ACOE method. The ACOE method for determining standby rates is FCCM (Facilities Capital Cost of Money) rate and the depreciation rate for the equipment – both of which do not apply to leased equipment.

Average Hourly Labor Rate



Microsoft Excel - Blank IGE

Independent Government Estimate

For Official Use Only

LABOR SUPPORT DATA

These Labor Rates are derived from the Davis Bacon Wage Rates set forth in Section D of the project SCR's

Assumptions

Burden Rate =	28.00%
Hours worked per Week =	40.0

Labor Rates

Description	Group	Base Rate	Zone	Fringe	Standard Hourly Rate	Burden	Additional Hourly Costs	Total Standard Hourly Rate	Overtime Hourly Rate	Burden	Additional Hourly Costs	Total Overtime Hourly Rate	Average Hourly Rate
Flagger	1	$ 11.98			$ 11.98	$ 3.35	$ 5.00	$ 20.33	$ 17.97	$ 5.03	$0.00	$ 23.00	$20.33
Laborer	1	$ 11.98			$ 11.98	$ 3.35	$ 5.00	$ 20.33	$ 17.97	$ 5.03	$0.00	$ 23.00	$20.33
Laborer	2	$ 14.41			$ 14.41	$ 4.03	$ 5.00	$ 23.44	$ 21.62	$ 6.05	$0.00	$ 27.67	$23.44
Operator, Grader (standard)	2	$ 17.55		$ 3.80	$ 21.35	$ 5.98	$ 5.00	$ 32.33	$ 32.03	$ 8.97	$0.00	$ 40.99	$32.33
Operator, Grader (finish)	4	$ 19.32		$ 3.74	$ 23.06	$ 6.46	$ 5.00	$ 34.52	$ 34.59	$ 9.69	$0.00	$ 44.28	$34.52
Operator, Excavator	2	$ 17.55		$ 3.80	$ 21.35	$ 5.98	$ 5.00	$ 32.33	$ 32.03	$ 8.97	$0.00	$ 40.99	$32.33
Operator, Roller	1	$ 15.05		$ 2.57	$ 17.62	$ 4.93	$ 5.00	$ 27.55	$ 26.43	$ 7.40	$0.00	$ 33.83	$27.55
Operator, Back-hoe	1	$ 15.05		$ 2.57	$ 17.62	$ 4.93	$ 5.00	$ 27.55	$ 26.43	$ 7.40	$0.00	$ 33.83	$27.55
Operator, Loader	2	$ 17.55		$ 3.80	$ 21.35	$ 5.98	$ 5.00	$ 32.33	$ 32.03	$ 8.97	$0.00	$ 40.99	$32.33
Operator/ Dozer	2	$ 17.55		$ 3.80	$ 21.35	$ 5.98	$ 5.00	$ 32.33	$ 32.03	$ 8.97	$0.00	$ 40.99	$32.33
Power Broom Driver	2	$ 19.01			$ 19.01	$ 5.32	$ 5.00	$ 29.33	$ 28.52	$ 7.98	$0.00	$ 36.50	$29.33
Truck Driver/ End Dump	2	$ 19.01			$ 19.01	$ 5.32	$ 5.00	$ 29.33	$ 28.52	$ 7.98	$0.00	$ 36.50	$29.33
Truck Driver/ Water Truck	2	$ 19.01			$ 19.01	$ 5.32	$ 5.00	$ 29.33	$ 28.52	$ 7.98	$0.00	$ 36.50	$29.33
Truck Driver/ Low Boy	3	$ 16.07		$ 4.11	$ 20.18	$ 5.65	$ 5.00	$ 30.83	$ 30.27	$ 8.48	$0.00	$ 38.75	$30.83
Truck Driver/ Belly Dump	3	$ 16.07		$ 4.11	$ 20.18	$ 5.65	$ 5.00	$ 30.83	$ 30.27	$ 8.48	$0.00	$ 38.75	$30.83
Concrete Finishers		$ 16.35		$ 3.71	$ 20.06	$ 5.62	$ 5.00	$ 30.68	$ 30.09	$ 8.43	$0.00	$ 38.52	$30.68
Carpenter		$ 15.00			$ 15.00	$ 4.20	$ 5.00	$ 24.20	$ 22.50	$ 6.30	$0.00	$ 28.80	$24.20
Mason					$ -	$ -	$ -	$ -	$ -	$ -		$ -	$0.00
Two man survey crew					$ -	$ -	$ -	$ -	$ -	$ -		$ -	$0.00

Laborer Group 1: Concrete worker, fence installer, guardrail, sign installer, form setter/stripper, general labor, flagger, pilot car driver, stake hop

Laborer Group 2: Asphalt rakerftamper, cement mason tender, concrete saw, maintainer for traffic control, mortar man, sand blaster nozzleman,

Source Materials

Publication Number: **EP 1110-1-8**

Construction Equipment Ownership and Operating Expense Schedule, Region IV

http://140.194.76.129/publications/eng-pamphlets/ep1110-1-8%28vol4%29/toc.htm

Check Rate Program

http://www.nww.usace.army.mil/cost/checkrat.asp